

MARITIME HERITAGE MINNESOTA



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Wrecks and Submerged Cultural Resources of Lake Minnetonka, Minnesota (BC 9500- AD 1965)

Multiple Property Documentation Form



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Cover: Lake Minnetonka from St. Albans (Edwin Whitefield, 1856-1859, MNHS AV1995.141.18).



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PRESERVATION OF MINNESOTA'S FINITE NAUTICAL AND MARITIME CULTURAL RESOURCES



An 1896 map of Lake Minnetonka (John R. Borchert Map Library G4142.M41896.C62x).

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INTRODUCTION

GEOGRAPHICAL DATA

Lake Minnetonka is located west of Minneapolis in Hennepin and Carver Counties in Minnesota and is over 14,000 acres in size. The lake is comprised of a series of 26 bays (Halsted, Priests, Cooks, Smithtown, Phelps, Harrisons, Jennings, Stubbs, Maxwell, Crystal, Spring Park, Carman, Old Channel, Lafayette, Echo, Tonka, Gideon, Excelsior, St. Albans, Smiths, Browns, Carsons, St. Louis, Robinsons, Wayzata, Grays) and 7 large sections of water (West Upper Lake, South Upper Lake, West Arm, North Arm, East Upper Lake, Lower Lake South, Lower Lake North) that are connected by narrows or channels. The lake is split into the 'Lower Lake' to the east and 'Upper Lake' to the west. The Lower Lake has one large island, Big Island, plus the smaller islands of Spirit, Lighthouse, Frog, Duck, and Mahpiyata. Upper Lake contains the large islands of Phelps and Enchanted, along with the smaller islands of Shady, Crane, Eagle, Wawatasso, Spray, Goose, Pelican, and Deering. Six Mile Creek flows into Halsted Bay at the western-most section of the Upper Lake and Painters Creek flows into Jennings

Bay at the Upper Lake's northwest corner. Further, Virginia, Dutch, Langdon, Emerald, Seton, Black, Forest, French, Tanager, Peavy, and Libbs Lakes also drain into Lake Minnetonka, along with Woolsey Pond. In the case of Emerald, Seton, and Black, these small lakes serve as connections between the Upper Lake bays of Spring Park, Cooks, and Harrisons. Other water drains into the lake as run-off. Minnehaha Creek flows out of Grays Bay through the Grays Bay Dam at the northeastern corner of the lake in Minnetonka. Minnehaha Creek flows into the Mississippi River at Minnehaha Park in Minneapolis, 22 miles away. The 14 communities and towns located on the lake are: Victoria, Minnetrista, Mound, Spring Park, Shorewood, Orono, Minnetonka Beach, Tonka Bay, Excelsior, Greenwood, Deephaven, Woodland, Wayzata, and Minnetonka.

SUMMARY OF IDENTIFICATION AND EVALUATION METHODS

The Shipwrecks of Minnesota's Inland Lakes and Rivers (9,500 B.C. to A.D. 1945) (SMILR) Multiple Property Documentation Form (MPDF), created in 1998 to consider what types of watercraft could be identified and considered for National Register of Historic Places (NRHP) nomination in every lake and river in the state, is limited in its scope in relation to Lake Minnetonka and the diversity of sites located there to date. The SMILR MPDF states that "because so little is known about individual types and so few examples of vessel types (i.e. property types) are expected to be identified in Minnesota's inland waters, the vessel types were not grouped into categories but only into two broad classes based on the vessels [sic] mode of power" (Hall, Newell, and Birk 1998, H-2). Firstly, no systematic remote sensing archaeological surveys had been attempted in Minnesota before 2010, when Maritime Heritage Minnesota (MHM) conducted the Mississippi River Aitkin County Survey. This first survey has led to others, including the Minnesota River Survey 1 (2011), the Lake Minnetonka Surveys 1 and 2 (LMS-1, LMS-2, 2011-2012), White Bear Lake Survey (2012), and Lake Waconia Survey (2012). Therefore, so little was known about individual types at the time the SMILR MPDF was written because no comprehensive underwater archaeological surveys or projects had been conducted in Minnesota. In reference to the assertion that so few sites were *expected* to be located in Minnesota, that conclusion was made before any projects had yet been conducted to support such a claim. When systematic remote sensing surveys in Minnesota are conducted and followed-up by Phase 1 underwater archaeological investigations, both wrecks and other submerged cultural resources are located and identified.

Fieldwork completed by MHM between 2011 and 2014 at Lake Minnetonka prompted the suggestion by Minnesota's National Register Archaeologist David Mather that the development of an MPDF specifically for Lake Minnetonka would be appropriate. The resulting Wrecks and Submerged Cultural Resources of Lake Minnetonka, Minnesota (BC 9500 - AD 1965) MPDF was prepared under a grant funded by the Minnesota Historical and Cultural Heritage Grant program, part of the Arts and Cultural Heritage Fund of the Clean Water, Land and Legacy Amendment. In the case of Lake Minnetonka, as of mid-July 2015, there are now 42 identified wrecks on the bottom of the lake or that were once on the bottom, including the aforementioned Woodland Culture dugout canoe removed from the lake in 1934. Of these wrecks, 27 of them have

26 Minnesota archaeological site numbers (2 wrecks are features of one site). The precise sinking dates or at least the year of disposition of 12 of the 15 remaining wrecks are known. Further, 3 other types of maritime sites now have archaeological site numbers, there are 9 maritime sites without numbers, there are 3 cars without numbers, 1 truck without a number, and 6 'other' objects have been identified - with 116 anomalies investigated by SCUBA to date (Merriman and Olson 2015g).

IDENTIFICATION METHODS

This MPDF was developed using the data gathered during these eight projects: the Dig on This Archaeology Program (2007), the LMS-1 and LMS-2 Projects in 2011 and 2012, the Lake Minnetonka Nautical Archaeology 1, 2, 3, and 4 Projects (LMNA-1, LMNA-2, LMNA-3, LMNA-4, 2012-2015), and the Minnesota Dugout Canoe Project (MDC, 2013-2014). In June 2007, a walking survey of Big Island defined the surviving archaeological remains and foundations of the Big Island Amusement Park, as well as sections of the Veterans Camp. A brief underwater survey using SCUBA of the steamboat pier remains occurred as well (Merriman and Olson 2007).

Prior to the beginning of the LMS-1 Project, there were six known wrecks in Lake Minnetonka according to the State of Minnesota – *Como*, *George/Excelsior*, *Hercules*, *Hopkins/Minnetonka*, *Minneapolis*, and the *White Bear*. However, through hearsay it was widely known that divers and fishermen knew of other wrecks in the Lower Lake. Of these six wrecks, only *White Bear* had been given a site number (21-HE-281). In late September 2011, the LMS-1 Project began in Gideon Bay on Lower Lake Minnetonka, traveling in an east to west direction, 'mowing the lawn' in transects spaced up to between 150-250 feet apart, creating a survey area of 300-500 feet per transect. Throughout the survey, some areas were targeted for further review and the beams would be shortened to 50 feet wide and often restricted to one side of the boat to get better images. In September, the LMS-1 Project encompassed Gideon Bay, Excelsior Bay, St. Albans Bay, and to a line north of Excelsior Bay and south of Gale Island extending from Tonka Bay to Greenwood. This line was chosen to include the known wreck *Minneapolis* in the survey area in order to get precise GPS coordinates of the site. Another section of the Lower Lake that comprised an area east of Big Island from Point Charming to Ferguson Point and north along the shoreline – and including Carson Bay, St. Louis Bay, and Robinson Bay to the mouth of Wayzata Bay – were also surveyed in September. In mid-November 2011, the Upper Lake's Crystal Bay and the remaining portions of the Lower Lake were surveyed during the LMS-1 Project; the survey was completed as the ice was coming in, and some bays were already iced-over. Upon the completion of the fieldwork portion of the LMS-1 Project, the required paperwork was completed to have the remaining five known wrecks recognized as nautical archaeological sites. Further, based on the Big Island maritime and terrestrial archaeology project MHM conducted in 2007 on Big Island mentioned above – combined with the sonar survey of Big Island Bay in 2011 – the Big Island Steamboat Pier, Park, and Veteran's Camp became a recognized archaeological site. Lastly, during the LMS-1 Project three new wreck sites were identified in Lower Lake Minnetonka that received site numbers as well, and it was determined 75 anomalies appeared to be

human-made objects that warranted further investigation by SCUBA (Merriman and Olson 2012a).

The LMS-2 Project was completed in May and early June 2012, beginning in the Upper Lake's North Arm, 'mowing the lawn' in the survey boat in parallel transects spaced 500 feet apart, with the sonar's transducer sending out acoustical waves 250 feet on each side of the boat. Next came Halsted Bay, Cooks Bay, Priests Bay, the northern section of the West Upper Lake, Harrison Bay, a portion of the West Arm, Stubbs Bay, Maxwell Bay, the rest of the West Arm, Jennings Bay, the southern portion of the West Upper Lake, Phelps Bay, Spring Park Bay, the South Upper Lake, Smithtown Bay, Carman Bay, and Old Channel Bay. Throughout the LMS-1 and LMS-2 surveys, MHM relied upon the GPS maps linked into the sonar unit for water depth and navigation, as well as the extensive navigation buoy system put in place by Hennepin County. It was determined that 54 anomalies recorded through side and down imaging sonar appeared to be human-made objects that warranted further investigation by SCUBA. Lake Minnetonka was the first body of water within Minnesota completely surveyed using remote sensing archaeological techniques (Merriman and Olson 2012b). The sonar footage from the LMS-1 and LMS-2 Projects was reviewed after the surveys to determine targets for future investigation.

The LMNA-1 Project began in October 2012 and continued the following Spring, with field work ending in July 2013. This project was designed to determine the nature of specific anomalies and newly-recognized nautical archaeological sites – wrecks – located during the LMS-1 and LMS-2 Projects. The LMNA-1 Project was designed to investigate (using SCUBA) a list of 22 targets – potential nautical or underwater archaeological sites – and wreck sites located during the LMS-1 and 2 Projects. The list was determined from an analysis of sites and anomalies that were deemed had the potential to produce the most historically and archaeologically significant data, that could answer the most questions, and that may be in danger from looting. The methodology used to identify and rudimentarily document underwater archaeological anomalies is straightforward but logistically complicated. The GPS coordinates of a wreck or anomaly, data produced during the LMS-1 and 2 projects, to drop a weighted diver down buoy near the target. Then the dive boat anchored a safe distance away from the buoy and divers geared up for the dive. At any given time there were between two and six divers underwater. If the buoy anchor weight – four pounds of dive weights – landed near and sometimes on the anomaly or wreck, no search for the target was conducted. However, for a variety of reasons, a brief search for the target was conducted until it was located or it was determined that the anomaly was a geological formation or vegetation. If a cultural resource was located, the divers photographed and recorded video of the site and then its basic measurements were recorded. Using data accumulated from the fieldwork as a starting point, maritime historical research placed known and newly recognized nautical and maritime archaeological sites in their contexts and in some cases, established identifications and disposition (sinking) dates. Minnesota Archaeological Site Forms were filed with the Office of the State Archaeologist (OSA) when appropriate. This approach was successfully repeated

during the LMNA-2 and LMNA-3 Projects. To date, 83 targets have been investigated in Lake Minnetonka (Merriman and Olson 2013a-b, 2014b).

After the completion of the LMNA-1 Project, another review of the over 30 hours of sonar footage that was recorded during the LMS-1 and LMS-2 Projects began. This process is on-going as continued diving on targets (LMNA-2, LMNA-3, LMNA-4 Projects) has revealed what types of acoustical signatures different submerged cultural resources have in comparison to naturally-occurring objects such as rocks and vegetation. As a result, more wrecks and other sites have been identified. At the time of writing, over 600 anomalies have been recognized on the bottom of Lake Minnetonka, with some sonar footage yet to be reviewed. A database of identified Lake Minnetonka archaeological sites and potential sites, their basic components, vital statistics, and location is maintained and updated when necessary. Beyond these field projects, the MDC Project identified the oldest Lake Minnetonka property that had been removed from the lake in 1934 (Merriman and Olson 2014a).

PRE-CONTACT PERIOD (BC 9500-AD 1650)

Minnesota's Paleoindian Tradition (BC 9500-6000) is characterized by the presence of Clovis and Folsom projectile points and is not presently represented archaeologically on Lake Minnetonka. However, the potential for discovering Paleoindian watercraft such as dugout canoes created using bifacially worked choppers and scrapers from this time period is possible owing to lower lake levels as the area was drying out with the warmer post-glaciation climate. A canoe might have been abandoned on a lakeshore that is now buried and submerged in deeper water. The Archaic Period (BC 6000-800) is typified by a change in stone tool production, including those types used for working wood, as well as the development of copper tool fabrication (Johnson 1988, 6, 10) and the Late Archaic Period is represented on Lake Minnetonka in a terrestrial context (Nienow 2004, 40). The Woodland Period (BC 800-AD 1650) is distinguished by the first pottery production, the construction of earthen mound-type graves, and the development of horticulture (Arzigian and Stevenson 2003, 79). The Lake Minnetonka area was occupied by seasonally sedentary groups of Native Americans throughout the Woodland Period. A group of terrestrial archaeological habitation sites on Lake Minnetonka dating to the Middle to Late Woodland Periods are located on the Halsted Bay Peninsula on the Upper Lake's southwestern shore. A series of archaeological investigations from 1991 to 2014 indicates that this area was occupied from the Middle to Late Woodland Periods. At these sites (21-HE-209 to 21-HE-213), Lake Minnetonka was exploited for food collection and the near-by thick forests were used for hunting. Specimens of squash, corn, and wild rice have been identified, as well as fish, turtle, bird, muskrat, beaver, and deer. Radiocarbon dating of maize and charred wood samples and ceramic studies indicate probable occupation dates of BC 200-AD 1100, with one sample dating to the Late Archaic to Early Woodland Period (BC 980-830) deemed unreliable (Terrell 2015, III, X, 5, 23, 42, 187-192, 202-203).



An early view of Upper Lake Minnetonka's Hardscrabble Point (MNHS AV1998.9.26V).

On the other side of Lake Minnetonka, at the northeast corner of the Lower Lake on Grays Bay, another habitation site has been documented (21-HE-353). Evidence excavated and analyzed at this site suggests seasonal occupation for the purposes of wild rice harvesting and the production of stone tools, as evidenced by a large amount of lithic debris. The site appeared to be repeatedly inhabited throughout the Middle to Late Woodland Periods between BC 200 and AD 1400 and possibly into the proto-historic period between AD 1400-1700 (Kloss 2005; Terrell 2015, 45). Another small Woodlands Period habitation site (21-HE-94) documented on Big Island in Lower Lake Minnetonka was comprised of a midden associated with Mound Group No. 6 (Arzigian and Stevenson 2003, 401; University of Minnesota 1992).



An early view of Wayzata Bay on Lower Lake Minnetonka's northeast shore (Edwin Whitefield, MNHS AV1995.141.29).

Mound burials are the predominate Woodland Period terrestrial archaeological sites located at Lake Minnetonka. Discovered singly and in small and large groups, Woodland burial mounds are found along all of Upper and Lower Lake Minnetonka's shoreline. Significantly for this MPDF, mounds exist on Gale and Big Island (as mentioned above) in the Lower Lake and Phelps and Wawatasso Islands in the Upper Lake. Phelps Island is significantly closer to the lake's shoreline than the others and may have been accessible during the Woodland Period without a watercraft, particularly during low water drought conditions. However, Wawatasso, Gale, and Big Islands would only been accessible by crossing the lake on winter ice or by canoe. With these sites recognized, along with the abundance of timber that was available around the lake, and one Woodland dugout canoe so far identified, it is evident that type was used on the lake throughout the Woodland Period.



A Native American burial mound in 1857 (Edwin Whitefield, MNHS AV1995.141.42).

Associated Property Types

One Lake Minnetonka watercraft is known from the Pre-Contact Period, a Late Woodland dugout canoe dated to AD 1025-1165 through radiocarbon testing (Merriman and Olson 2014a, 12). There are no other artifacts associated with the canoe so it is unknown which recognized cultural group (Central Minnesota Transitional Woodland Complex: Middle to Late Woodland in Central Minnesota, AD 300-1100, or the Blackduck-Kathio Complex: Late Woodland in Northern and Central Minnesota, AD 600-1100, Arzigian 2008, 1, 206, 209) created and used the artifact. The dugout canoe was found in the North Arm of the Upper Lake:

Lake Minnetonka North Arm Dugout Canoe (21-HE-438)

During low water conditions due to a severe drought in late August 1934 Helmer Gunnarson and his brother Arthur, sons of Gustave A. Gunnarson, discovered the Lake Minnetonka North Arm Dugout Canoe (LMNADC). Throughout the summer, the Gunnarson family had to construct extensions to their dock as the water continually receded from the normal shoreline. Helmer and Arthur had sunk several dock pilings but one hit an obstruction 10-12 inches below the silt. Thinking they had hit a log, they exposed the object and dragged it onto the shoreline where they determined it was a dugout canoe. Helmer and Arthur observed that the canoe "had been maintained in an excellent state of preservation as a result of having been imbedded in earth and completely covered by several feet of water over an extended period of time". The Gunnarsons gave the LMNADC to the Minnesota Archaeological Society (MAS) and at their October 1934 meeting, the LMNADC was the "main subject for discussion". The society loaned the artifact for exhibit to the Minneapolis Institute of Arts in late 1934, the LMNADC was shown in the MAS display within the Walker Art Gallery thereafter, and it was on exhibit at the Minneapolis Public Library until 1961. The Western Hennepin County Pioneer Association (WHCPA) acquired the LMNADC in 1961 from the MAS. In its current condition the artifact is 11.1 feet long, 1.4 feet wide, and its depth of hold is .55 feet deep. The artifact's sides have deteriorated and the original height of the vessel to its gunwales is unknown. When the canoe initially left Lake Minnetonka, the ends were more intact when compared to its current condition. Using the photographic evidence as a guide, at least one end of the LMNADC was pointed. Radiocarbon dating using Accelerated Mass Spectrometry has determined that the LMNADC dates to AD 1025-1165 (930±30 BP). Dr. Ron Schirmer of Minnesota State University Mankato has determined the canoe was fashioned out of a white oak tree (Gunnarson and Gunnarson 1966; Merriman and Olson 2014a, 9-12; Minneapolis Institute of Arts 1934, 1; Morrow 2001, 5-6; Sackett 1936, 8; Dr. Ron Schirmer personal communication, 16 January 2015; *Weekly Valley Herald* 1934).



Helmer and Gustave Gunnarson removing the Lake Minnetonka North Arm Dugout Canoe from the water in front of their cabin in August 1934 during low water conditions (MNHS, HE5.19p17, digitized by MHM).



The Lake Minnetonka West Arm Dugout Canoe on exhibit at the Western Hennepin County Pioneer Museum (MHM).

Two other Woodland Period dugout canoes are known in Minnesota, the Big Swan Dugout Canoe (AD 1039-1210, 21-ME-37) from Meeker County and the Chippewa River Dugout Canoe (AD 1436-1522) from Chippewa County (Merriman and Olson 2014a, 13-16). The existence of these artifacts suggests the widespread use of dugout canoes in Central Minnesota during this time. Other Pre-Contact Period dugout canoe sites may lie in Lake Minnetonka beneath the bottom silt.

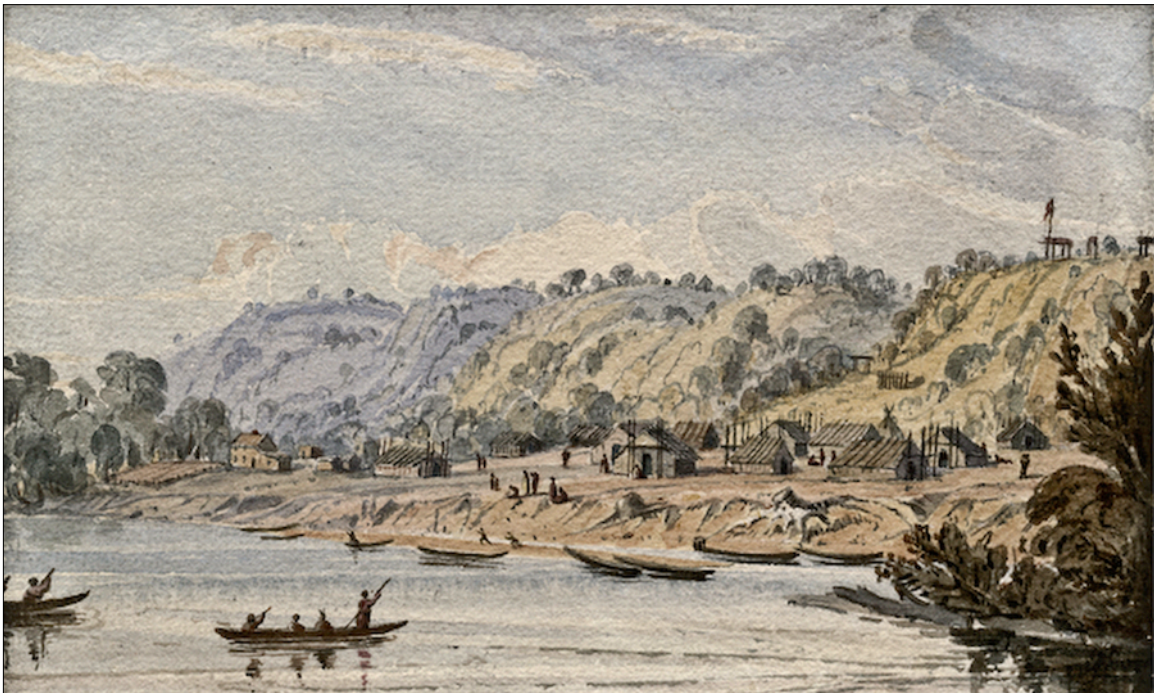
CONTACT PERIOD (AD 1650-1837)

Minnesota's early Contact Period is characterized by the movement of the Oto and Ioway peoples from the south into southern Minnesota and the migration of Great Lakes regions tribes into northern Minnesota. During the winter of 1659-1660, a French group moved into the region to exploit the abundant fur trade economy and to explore. These Europeans traded for pipes, corn, and rice with Minnesota's Dakota people in northwestern Wisconsin. In 1660 the French moved into Minnesota with the Dakota for a bison hunt, probably on the west central Minnesota prairie. Other French expeditions in the late 1670s and early 1680s came into Minnesota from the north and south, making observations about the Mississippi River and Lake Mille Lacs. The early Contact Period was also known for conflicts between the Iroquois people and their competitors, fighting for dominance in Minnesota's fur trade (Anfinson 1987, 16-18; Gibbon 2003, 48-49).

Native American Contexts

In search of metal deposits and to conduct trade, a group led by Pierre Charles Le Sueur traveled up the Mississippi River and Minnesota River to the Blue Earth River in 1700 and encountered the Dakota (Wedel 1981, 2-3). Regardless of this early Contact Period interaction with Europeans to the north and southwest of Lake Minnetonka, the lake itself remained unknown to non-Native Americans. Further, during the Contact Period in the Lake Minnetonka area, there are no first-person accounts of Native

Americans using dugout or bark canoes on Lake Minnetonka or in Minnesota during this time. However, descriptions of Late Contact and early Post-Contact Period dugout canoes constructed and used by Native American tribes and Europeans exist from 1835 to the early 1850s in the form of travel diaries and Captain Seth Eastman's watercolor paintings and pencil sketches. In 1834, George W. Featherstonhaugh traveled by steamer, train, horse, and canoe from the East Coast to the source of the 'Minnay Sotor', or St. Peter's River. In 1835, on his way back east, Featherstonhaugh spent time in Wisconsin and complained about his lake travels in a dugout canoe. As he described it, it "was a wretched, tottering affair, imperfectly hollowed out of a small log, and wobbled about in such a doubtful manner that we had been several times near upsetting in crossing the lake. In this 'dug-out'...I had taken my seat on the bottom near the prow, with my face towards the stern, holding the sides with my hands" (Featherstonhaugh 1847, 102; Merriman and Olson 2014a, 3).



Little Crow's Village on the Mississippi. MHM contends the majority of the canoes depicted here are dugouts due to the lack of sharply upturned ends shown (Seth Eastman, MNHS, AV1991.85.33).

Another first-hand account of dugout use comes from Count Francesco Arese who traveled Minnesota's waterways during 1837. At Traverse des Sioux on the Minnesota River, known to Arese as the St. Pierre River, he traded his horse to two Native Americans for what he described as a "small boat". However, this small boat is also characterized as a "canoe", but it probably was not a dugout canoe because Arese provided a detailed account of the next watercraft he used in Minnesota. He took to the Mississippi River at the confluence with the Minnesota River in a dugout with two Canadians. Arese described their craft as "a wooden one made of a tree trunk. It was 30 or 35 feet long and from 1/2 to 2 broad. When I was sitting on the bottom of it...I had a hard time moving, for the great trouble with such canoes is that they are very

unsteady and a fairly heavy wave fills them at once. A person not accustomed to them hardly dares to move; but in a short while you learn to turn in every direction without making them lose their balance". Arese also traveled through Wisconsin, buying passage with a Native American family in their 24-foot long birch bark canoe. Arese contended that he found "that type of canoe far preferable to the wooden ones, because they are more comfortable to sit in, it is easier to move about, they are less tippy, and being infinitely lighter than the others, they always float on top of the waves and consequently never ship water. And...they go faster than the others. There one bad point is that the least blow tears them...you have to disembark when the water is extremely shallow, to keep them from rubbing along the bottom (Arese 1934, 110, 118, 129, 146; Merriman and Olson 2014a, 3-4).



Native Americans in canoes on the water and carrying a birch bark canoe (Seth Eastman, MNHS, AV1991.85.5).

Euro-American Contexts

In May 1822, 17 year-olds Will Snelling and soldier Joe Brown along with two other soldiers "explored the rivulet that supplies the cascade of Minne-HaHa, as far as Lake Minne Tonka" in 1822 (Neill 1858, 331; Upham 1920, 67, 224, 230). This small expedition was comprised of the first non-indigenous people to see the lake. A contemporary report of this trek is vague, but Minnehaha Creek and Lake Minnetonka are briefly described:

The country about the fort [Snelling] contains several other waterfalls....One of them, which is but two miles and a half from the garrison...is very interesting. It is known by the name of Brown's Fall...The stream that exhibits this cascade [Minnehaha Falls] falls into the Mississippi about two miles above the fort; it issues from a lake situated a few miles above, A body of water, which is not represented upon any map that we know of, has been discovered in this vicinity within a few years, and has received the name of Lake Calhoun, in honour of the Secretary at War. Its

dimensions are small. Another lake of a much larger size is said to have been discovered about thirty or forty miles to the north-west of the fort. Its size, which is variously stated, is by some supposed to be equal to that of Lake Champlain, which, however, from the nature of the country, and the knowledge which we have of the course of the rivers, appears scarcely possible (Keating 1825, 314-315).

Lake Minnetonka is not as large as Lake Champlain, but Keating too readily dismissed the possibility of a large lake existing in the area to the northwest of Fort Snelling. Beyond this visit, Lake Minnetonka remained unknown to European Americans, even after Jean Nicollet combined the data he collected between 1836-1840 during five expeditions to survey the region. His explorations went to the headwaters of the Mississippi River, along the St. Louis River to Lake Superior, down the St. Croix River and then Minnesota River to Pipestone, and into South and North Dakota (Neill 1858, 417-420). Nicollet's map records Minnehaha Creek, marked as Brown's Creek, to where Lakes Harriet, Calhoun, and Lake of the Isles drain into it; like Keating, Nicollet dismissed the 'rumor' of a large body of water to the northwest of Fort Snelling. Because of this attitude, there will be no European American Contact Period wrecks or submerged resources discovered on the bottom of Lake Minnetonka.



The 1843 Nicollet Map does not record the existence of Lake Minnetonka (MNHS G4042.M5 1843.N5 Reserve 6F).

POST-CONTACT PERIOD (AD 1837-1945)

In the early 1850s, a description of Native American canoe-making was discussed within the context of their creation as art. The process of birch bark canoe construction was detailed step by step, and the people who made them were described as skilled with good taste. To contrast, dugout canoes were given hardly a mention and were characterized as "ordinary...made from the entire trunk". The ability to create elegant lightweight structures such as birch bark canoes was attributed only to the Algonquian tribes of the north and east, whereas the construction of dugout canoes was assigned

only to the "southerly and westerly tribes" (Schoolcraft 1852, 511-513, Pl. 72.5). This assertion is incorrect, since birch bark canoe making was known to the southern Minnesota tribes by the 1830s (see Arese above) and probably earlier, with dugout canoe construction simply being an older tradition of craft-building or utilized by less-skilled craftsmen. However, birch bark canoes were utilized by northern tribes and French traders in Minnesota and Canada by the late 1600s (Wheeler et al 1975, 2-4; Merriman and Olson 2014a, 5).

Santee Dakota physician and author Charles Eastman (Ohiyesa) contended that Native Americans constructed dugout canoes when birch bark was not readily available. A suitable tree to fell would be chosen carefully, with soft maple, basswood, and cottonwood being the most appropriate to create a craft 12-16 feet long. During the prehistoric period the bulk of the inside of the trunk would be burned out to remove the majority of the wood and then finished with stone tools. The outside of the hull would have been smoothed with bone knives or sharp shells. With the introduction of metal tools in the historic period, the tree trunk would be smoothed on the outside into a boat shape and athwartships cuts were made about one foot apart down the length of the log. The wood between these cuts would be split longitudinally and removed, and then hollowed out more with a pickaxe and smoothed by a chisel. Eastman described the thickness of the dugout canoes hull to be four to six inches and determined that knives smoothed the outer hull. Although not mandatory, fire was sometimes used to dry the hull and polish it. Eastman held that many Native Americans preferred dugouts to birch bark canoes because they believed them to be faster, more durable, and in the historic period they were easier to make due to the availability of better tools. Eastman believed that "the forest Indian alone still clung to the bark canoe". Finally, Eastman stressed one aspect of using dugout canoes – they were not intended for use by the novice. He contended dugouts were "very graceful in the hands of an expert Indian canoeist" (Eastman 1914, 49-51). This facet of craft handling might explain the derision that Featherstonhaugh and Arese held for their dugout canoe transportation, particularly when it was handled by Canadians (Merriman and Olson 2014a, 5).

The 1851 Treaties of Traverse des Sioux and Mendota opened the Lake Minnetonka area to European settlement and Minnetonka Mills was established in 1852 at the source of Minnehaha Creek, at the northeast corner of Lake Minnetonka now known as Grays Bay. In April 1852, Lower Lake Minnetonka was explored and described by Simon Stevens and Calvin A. Tuttle. These men:

set out...to search for a large body of water west of the village; they had learned from Philander Prescott, the Indian interpreter at Fort Snelling, that the Indians told of a 'big water', towards the setting sun, in the big woods...Stevens and Tuttle supposed the lake they were in search of to be distant two or three days journey. A little before noon, of the first day, they came to a clear, swift-running stream, which they surmised was the outlet of the lake there were seeking. Following the course of the stream, on its north bank, about one o'clock in the afternoon, they reached the bay, now called Gray's Lake where they cooked and ate dinner. After dinner, still uncertain whether they had found the 'big water', they pushed on, westerly, and came to Wayzata Bay, thence across the ice which was about three feet thick past Breezy Point, to Big Island, where they camped for the night (Atwater and Stevens 1895, 1448-1450).

Upon returning from Lake Minnetonka, Tuttle and Stevens referred to it as "Peninsula Lake". It was accurately claimed that "almost the entire shore appears to be a succession of bays and peninsulas" (Upham 1920, 224).

A few weeks later, in May 1852, Minnesota's territorial Governor Alexander Ramsey toured the Lake Minnetonka area and was credited with naming it using the Dakota words that meant "big" and "water" – Minne and Tonka. The Office of the Surveyor General documented Lake Minnetonka in October 1853 and November 1854. The Minnetonka Mills sawmill on Minnehaha Creek and the Lower Lake's south shore town of Excelsior were established in 1853. Wayzata, on the north shore of the Lower Lake, was founded in 1854 (Dunwiddie 1975, 172; U.S. Surveyor General's Office 1854; Upham 1920, 221, 224, 227).

A visitor in mid-July 1855 described Lake Minnetonka:

Tuesday morning 10th I took stage for Minnetonka Mills (12 miles S.W. from Minneapolis), on the outlet of Lake Minnetonka. On the way passed a number of beautiful little lakes in Prairie & Timber. At Minnetonka Mill found a first rate Sail boat, and took passage 2 miles up the outlet to the large lake, and thus up the Lake stopping at Wayzata to Excelsior 12 or 15 miles. I believe it is the most beautiful sheet of water I was ever on; the water is clear as crystal, pure as the purest spring, full of fish too. It is beautiful with coves & points mixed up with Islands everywhere. In fact in this region the land is about half water, & the water about half land. Unlike the Lakes in Maine, the land here all around these lakes is very fertile, mostly well wooded, very little rocks anywhere. You can see but a few miles of water anywhere, but the lake is at least 30 or 40 miles long (probably has never been fully explored), and connected on all hands with other lakes. Minnetonka will sometime be a great place of resort, with fine Steamboats & Hotels. Excelsior on South Shore of Lake where I stopped was settled last year by a New York Colony, town laid out & c. Bid fair to be a fine place, good society, families of education & refinement. Both Pianos and Bloomer dresses are plenty and both look well away there in the woods. Yesterday 11th, After a fine swim in the Lake, I started back for St. Paul 33 miles in a Lumber Wagon (Metcalf 1855).



Minnetonka Mills, east of Grays Bay at the source of Minnehaha Creek (HCL BR0312).



An early view of Excelsior Bay and landing (TC Campbell, MNHS AV1988.45.248).

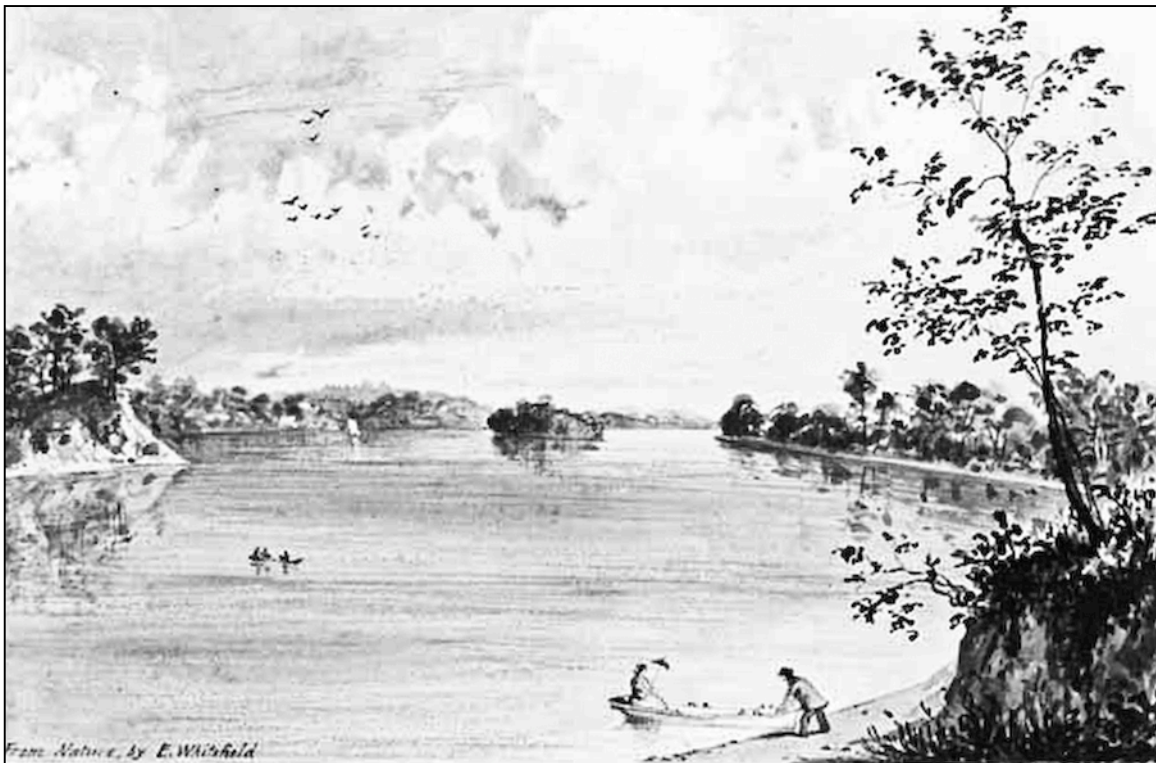
A woman claiming to be the first European American child born in Hennepin County, on Upper Lake Minnetonka in September 1855, wrote:

Father took up a piece of land built him a log house and moved in. and there on the banks of the North Arm of Lake Minnetonka in a little log hut on a one leged [sic] bedstead on Sept 11th 1855 I was born. Mother had no Dr only a Midwife or any white Neighbors only as they took a boat and went across the Lake. there we lived for nearly 2 years, Among the Indians. They were very kind hearted, generous, always honorable...My Parents treated them with much respect always dividing with them when they came. they had their trail between the house and Lake and could be seen quite often in the Canoes on the Lake. there Mother sat with her new born Babe and watched Father chop and clear a small piece of land" (Brown 1926, 2-3).

Brown must have received this information from her parents due to her age, but the simple mention of a Post-Contact Native American canoe traveling on North Arm is valuable to place Lake Minnetonka's watercraft in context. Whether the canoe was a dugout or made of bark is unknown. Metcalf's description of the wildness of Lake Minnetonka is valuable considering the physical changes to the environment that he predicted, and were going to begin soon.

The release of the US government's comprehensive 1853-1854 land survey in 1856 focused interest on the settlement of Lake Minnetonka by European Americans. Access to this survey, its information, and its maps provided accurate geographic information about Upper and Lower Lake Minnetonka for the first time. Newspapers began reporting on Lake Minnetonka commercial and agricultural activities and opportunities, providing insight into early Post-Contact geographic details that have changed or no longer exist. For example, "Cottage Island" was described in 1856 as being formerly called Meeker's

Island, a change that occurred very early in Lake Minnetonka's Post-Contact history, and now known as Big Island. It was reported that the name change to Cottage Island came about due to the Native American cottages that occupied it. These structures were described: "There are upon it numerous Indian cottages- not the common tepees made of poles and covered with skins and canvas, but houses built of timber, and in addition a large fort made of logs, enclosing nearly an acre, a relic of some contest between the Dacotah and Ojibwa tribes, doubtless". This early newspaper account, in referring to Hennepin County, claimed "no other county offers greater inducements to the farmer, the mechanics, or the tradesman. Builders, cabinet-makers, carriage, wagon and plow makers, are in great demand, and excellent workmen need have no hesitation in emigrating to Hennepin county, Minnesota Territory" (*Northwestern Democrat* 1856). To date no Post-Contact or Contact Period Native American lodges have been located on Big Island, but evidence of them may still be found.



An 1859 view of Lake Minnetonka's 'north side' (Edwin Whitefield, MNHS MH5.1L p42).

Railroads & Agricultural Development (1867-1940)

The St. Paul and Pacific and Railway Company (SP&P) extended its mainline west from St. Paul to Wayzata on Lower Lake Minnetonka's northwest shore in August 1867. In 1875 James J. Hill and George Acker formed Hill and Acker of St. Paul, a fuel company

that exploited the transportation by rail of coal and where it concerns Lake Minnetonka, wood. Hill and Acker also partnered with John A. Armstrong out of Minneapolis. Hill and Acker contracted with "choppers" on Lake Minnetonka and beyond, into the geographic area known as "The Big Woods", while Armstrong exploited timber stands closer to Minneapolis, between Minneapolis and Delano. Hill personally headed west out of St. Paul in January 1876 to Howard Lake, where his representative William Marsh was contracting to purchase cord wood with a \$400 advance from Hill. Hill also traveled to Wayzata on Lake Minnetonka to secure the purchase of about 3,000 cords of wood 'banked' on the shores of the lake, ready for removal in the Spring from the Upper and Lower Lakes (Hill 1876; Hill and Acker 1875a; Hill and Acker 1875b; Schmidt and Pratt et al 2012, 85-87).

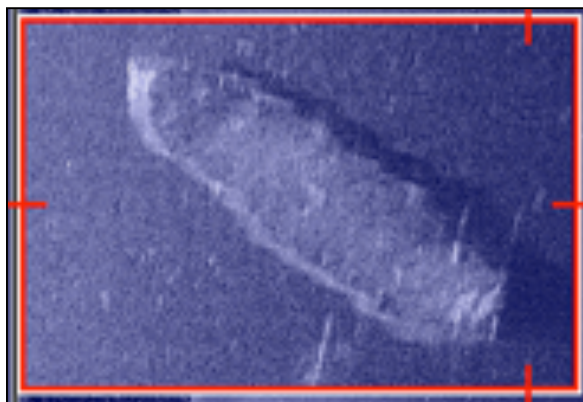
The great amount of timber being cut in the Lake Minnetonka area prompted Hill and Acker to construct a tug boat and barges to transport the cut wood from around the lake to Wayzata in 1876 (Hill 1876; Hill and Acker 1876a-i). In June 1879 the SP&P was incorporated into the St. Paul, Minneapolis and Manitoba Railway Company (SPM&M), partially owned by Hill. The Lake Junction line from Wayzata to Spring Park, following the northern shoreline of Lake Minnetonka, was constructed in 1881, initially for the movement of freight. However, the addition of passenger service in the late 1880s allowed the line to prosper due to the swell in the number of large tourist hotels constructed (Schmidt and Pratt et al 2012, 93-94). By the 1880s, the deforestation of the Lake Minnetonka area and The Big Woods was nearly complete, prompting land use for agriculture and an increased number of lake homes and cottages.

Associated Property Types

One wreck has been identified that is associated with the transportation system linked to Lake Minnetonka's railroad service:

1876 Wayzata Bay Wreck (21-HE-401)

The Wayzata Bay Wreck is a rare and well-preserved model barge that is 85.00 feet long, is 18.50 feet in the beam, and has a 3.50 foot depth of hold. A model barge is an un-powered vessel that has two pointed (sharp) ends, making her double-ended. She is sturdily built, with distinct scarfs in her gunwale at different points, has an intact deck, substantial wooden cleats, deck hatches, large H-bitts on both ends, and distinct stem/stern posts. The Wayzata Bay Wreck sank on September 30, 1879: "Monday night's storm was a lively on at Lake Minnetonka. A barge was sunk and a small steamer was capsized near Wayzata" and "the storm last night proved a regular screamer at Lake Minnetonka. The wind held high frolic, and succeeded in tipping over a small steamer anchored near the Wayzata shore, and sinking a barge". The Wayzata Bay Wreck was part of the barge fleet owned by the fuel company of Hill & Acker, and was constructed in 1876. This model barge was utilized to haul cord wood and ties from Upper and Lower Lake Minnetonka communities to Wayzata. The cord wood was then transferred to railroad cars for delivery to sites where it could be utilized as steam locomotive fuel. Wood ties were loaded on the rail cars for delivery to railroad extension sites. The deforestation of Lake Minnetonka increased available agricultural land and building construction sites. The Wayzata Bay Wreck represents a one-of-a-kind nautical archaeological site in Minnesota, one of only three model barge wrecks in the United States, and the best-preserved wreck of her type known (Merriman and Olson 2013a, 7-11, 2015k; *Minneapolis Tribune* 1879; Stewart-Abernathy 2002, 172-174; Saltus and Stewart-Abernathy 2002, 102-118; Stewart-Abernathy and Saltus 2002, 139, 141; *St. Paul Globe* 1879).



Sonar image of the Wayzata Bay Wreck (MHM).



One end of the wreck with an H-bitt (Edward Nelson).

The potential to locate more wrecks associated with Lake Minnetonka's Railroad and Agricultural development is good.

Tourism & Recreation (1860-1965)

Boat Building

By 1860, the Lake Minnetonka area had been claimed by European Americans and developed to the point where businessman Charles Galpin commissioned the construction of the first steamboat on the lakeshore, the sidehweeler *Governor Ramsey*. Galpin informed Governor Ramsey in St. Paul about the vessel:

I have been engaged in an enterprise (though on a small scale) to make our Lake a summer watering place. I have built a small steamboat that will carry about a hundred passengers, and I have named it *Gov. Ramsey*. And more my hope is that you will get up a small party at least visit our Lake and it shall be a sufficient present for the name. This you know will help us along by way of popularity & other parties may follow. But I am aware that the general cry is, the times are too hard to spend much in pleasure, but I have tried to remedy this in part by opening my own house to accommodate eight or ten persons at a time, for fifty cents a day (Galpin 1860).

This hand-written letter announced the inception of commercial boat building on Lake Minnetonka, primarily for the purpose of moving visitors around the lake. *Governor Ramsey* made the trip down Minnehaha Creek to Minnetonka Mills, met stage passengers and collected the mail, and then traveled around Lake Minnetonka delivering passengers and freight to their intended destinations. *Governor Ramsey* (later becoming *Excelsior*, *Lady of the Lake*, *Minnetonka*, and finally she was transformed into the unpowered barge *Mermaid* in 1874) remained the only steamer on Lake Minnetonka until the launch *Sue Gardiner* was imported from Detroit by Charles R. Gardiner in 1871 (McGinnis 2010, 95, 238).

However, many steamers, sailboats, and rowboats were designed and constructed on Lake Minnetonka's shores by local independent boatwrights for local transportation, to serve the tourist trade, and recreation. Nathaniel H. Harrison began building boats in

1874, and his constructions included many well-known vessels such as *May Queen* (1874), *Coquette* (1879), and *City of Minneapolis* (1880); he also re-fitted vessels and designed boats for other builders. Maurice J. Godfrey constructed his first Lake Minnetonka vessel in 1879 and established Godfrey's Excelsior Boat Yard in 1885, later becoming M. J. Godfrey & Son, on St. Albans Bay's south shore. Godfrey's enterprise was responsible for *Hattie May/Tonka* (1878), *Breezy Point* (1884), *Nina* (1884), *Minnehaha* (1885), *Mayflower* (1898), *New Acte* (1898), and *George/Excelsior* (1901) with George E. Day. Godfrey also took on jobs to re-build and re-design several steamers. Gustavus V. Johnson was responsible for a number of Lake Minnetonka-constructed boats including *Lillie Reid* (1878), *Elsie* (1879), *Albatross* (1880), *Agnes* (1881), *Susie Belle* (1880-1881), *Dutchy* (1881), *Ariadne* (1882), *Kismet* (1882), *Margaret* (1883), *Rachel Hill* (1883), barge *Priscilla* (1902), and *John Alden* (1905) (McGinnis 2010; *Minneapolis Journal* 1901).

Sawin H. Dyer began building Lake Minnetonka watercraft in 1881 out of Excelsior. He constructed the sailboats *Black Pirate* (1882), *Osprey* (1883), *Wave* (1884), *Lucifer* (1887), *Single Tax* (1893), and *Traveller* (1896), and completely re-built the steamer *Mary* into the vessel *Hiawatha* (1881). S. H. Dyer's partnership with his young son Arthur produced the vessels *Genevieve* (1890), *Snark* (1890), *Hermes* (1891), *Kestrel* (1891), and *King Bird* (1891) before Arthur set out on his own, founding the Dyer Boat Works in 1892. Arthur primarily designed and built fast racing sailboats, but also constructed a few motor launches and even a work dredge as well. Some of his creations include *Advertiser* (1892), *Apukwa* (1893), *Arrow* (1894), *Diamond* (1894), *Cupid* (1893), *Onawa* (1893), *Water Witch* (1893), *Marie* (1894), *Psyche* (1894), *Wasp* (1895), *Rambler* (prior to 1895), *Alcyone* (1896), *Cupid* (1896), *Magic Slipper* (1896), *Papoose* (1896), *Reveille* (1896), *Swift* (1896), *Marie II* (1897), *Gladys* (1899), *Sapphire* (1899), and the *Boardman Dredge* (1907). Dyer's most impressive vessel was the groundbreaking *Onawa*, on display at the Excelsior-Lake Minnetonka Historical Society (ELMHS). *Onawa*'s innovative 'gliding over the water' design, conceived by local 15-year old Ward Burton, broke speed records and influenced yacht construction from that point forward and Dyer received many orders for similar boats from East Coast patrons. Unfortunately for the maritime history of Lake Minnetonka, Dyer Boat Works completely burned in 1910, taking 43 vessels stored there with it – steamers, motor launches, and sailboats among them (McGinnis 2010).

In 1882 John R. Brooks arrived at Lake Minnetonka from the East Coast, where he had designed and built yachts, and established his boat-building firm at Cedar Point on Wayzata Bay. He was prolific during his 17-year career on Lake Minnetonka and exclusively constructed sailing vessels including *Catherine* (1882), *Curlew* (1886), *Phyllis* (1886), *Atalanta* (1888), *Aurora* (1889), *Aurelia* (1890), *Kelpie* (1890), *Kid* (1890), *Kitten* (1880), *Luella* (1890), *Celia R.* (1891), *Dolphin* (1891), *Selah R.* (1891), *Siren* (1891), *Coquette* (1893), *Daphne* (1893), *Deke* (1893), *Argo* (1894), *Iris* (1894), *Dragon* (1895), and *Answer* (1896). Brooks also designed some of the boats mentioned above, designed boats for other builders, re-built some yachts over the years, and several of the yachts he constructed on the East Coast found their way to Lake Minnetonka (McGinnis 2010).

Gustavus Johnson was in business with Royal C. Moore between 1883 and 1888 under the name Johnson and Moore, producing the *Kansas City* (1883), *Lazy Jane* (1884), *Rosander* (1885), *Woodland* (1885), and *Lizzie Gill* (1886) during their partnership. Royal Moore established the Moore Boat Works and his distinct 'torpedo stern' design that left virtually no wake and reduced drag, was a hallmark of many Moore vessels. Between 1888 and 1912, Moore Boat Works produced dozens of vessels, including *White Wings* (1888), *Winona* (1889), *Zoraya* (1889), *Wacouta* (1890), *Florence I. Wright* (1891), *Oriole* (1891), *Ventura* (1891), *Columbia* (1893), *Mischief* (1893), *Ethel* (1894), *Oswa* (1894), *Thistle* (1894), *Senorita* (1894), *Ypsilanti* (1894), *Gale* (1895), *Orphan* (1895), *Shark II* (1896), *Breeze* (1897), *Demon* (1897), *Gladis* (1897), *Kossack* (1897), *H. C. McLeod* (1898), *Arbors/Green Dragon* (1899), *Dewey* (1899), *Dorothy* (1899), *Emma L.* (1899), *Florence* (1899), *Idylwild* (1899), *Katahdin* (1899), *Okadusa* (1899), *Wa Wa* (1899), *Dunnottar* (1900), *Marietta* (1900) *Algoma* (1901), *Aurelia* (1901), *Rainbow* (1901), *Sans-Souci* (1901), *Tanager* (1902), *Widgeon* (1902), *Winilorah* (1902), *Ito* (1903), *Billy D.* (1902/1903), *Iamokay* (1904), *Bobolink* (1906), *Buttinsky* (1905), *Canihauke* (1901), *Captain H.* (1901), *Cheemaun* (1901), *Muskegon* (1903), *Helenita* (1905), *Golden Rule* (1905/1908), *Como* (1906), *Harriet* (1906), *Hopkins* (1906), *Minnehaha* (1906), *Stillwater* (1906), *White Bear* (1906), *Katahdin II* (1906), *Sierra-Nevada* (1906), *Isabelle* (1907), *Harriet* (1909), *Manawa* (1909), *Tasmatic* (1909), and *West Arm* (1909). In addition, Moore Boat Works modified, maintained, and fixed several other watercraft through its 24-year existence, as well as constructing dozens of other non-Lake Minnetonka boats. In 1912 a group of Minneapolis business interests associated with the Ramaley Boat Company of White Bear Lake purchased Moore Boat Works and continued operations until 1929 (McGinnis 2010; *Minnetonka Herald* 1954; *Minnetonka Record* 1928; *Wayzata Reporter* 1912).

Thomas H. Wise built boats at Lake Minnetonka beginning in 1886 and by 1902, he established his Wayzata firm, the Wise Boat Works. Examples of Wise boats include the *Ripple* (1889), *Pauline* (1890), *Ino* (1891), *In An' Out* (1892), *Nautilus* (1893), *Omega* (1893), *Viletta* (1894), *White Crow* (1894), *Henry* (1906), and *Swan* (1906), along with several launches for local folks, but the names of these boats are unknown. Andrew B. Peterson arrived in Excelsior in 1893 and between 1894 and 1904, he built boats at the location of the current Excelsior Commons. His vessels included *Dagmar* (1893), *Gypsy* (1895), *Hawk* (1894), *Lorelei* (1894), *Slipener* (1895), *Victoria* (1895), *Beatrice* (1896), *Hurrah* (1896), *Tartar* (1896), *Katrina* (1897), *Pyxie* (1897), *Tonic* (1897), *Wizard* (1897), *Fremad* (1898), *Hazard* (1898), *Moccasin* (1898), *Cherokee* (1899), *Puritan* (1901), *Gopher* (1901), and *Wihnja* (1904). Peterson also designed the steamer *Plymouth* (1903), built by John R. Johnson. Peterson sold his boat yard to his son P. L. Peterson and his partner F. Johns in June 1904 (McGinnis 2010; *Minnetonka Record* 1904). Numerous other boat builders constructed vessels on the shoreline of Lake Minnetonka during the Post-Contact Period and many different sized companies were founded to operate the boats.

The large number of tourists visiting Lake Minnetonka during the latter quarter of the 19th Century particularly impacted the Upper Lake. Many hotels and boarding houses were scattered around the various Upper Lake islands and bays: including the Palmer

House at Zumbra Heights, Pleasant View on Howard's Point, the Upper Lake House/Edgewood House on the south shore of the East Upper Lake, Hotel Harrow/Shady Isle House on Shady Isle, the Maple Heights Inn/Woolnough's Inn on Phelps Island, and the Hotel Del Otero in Spring Park. In Mound City itself, the Bartlett House, Mound City House, Dewey House, the Buena Vista Hotel, the Switzerland Hotel, and Sunset View Hotel. Advertisements for these Upper Lake establishments all stressed the fact that they were on the steamboat routes and boat owners published their schedules to the boarding houses and hotels as well (Meyer 1997, 64-73, 100; *Northwestern Tourist* 1883b; *Tourist and Sportsman* 1881).

Yacht Clubs

Not only were the hundreds sailboats constructed on and imported to Lake Minnetonka from the East Coast used for recreational boating, competitive yacht racing developed as well. In early July 1882 during the opening weekend of J. J. Hill's Hotel Lafayette one sailboat race spawned, over the next two months, the Minnetonka Yacht Club (MYC). The inaugural members of the MYC sailed either catboats or sloops that measured between 18 and 23 feet long. The first MYC regatta was held on 15 August 1882, beginning over 130 years of competitive racing. The Excelsior Yacht Club was established in 1883 but by 1889, the two clubs merged into one and a clubhouse was constructed on Lighthouse Island in 1890. By this time, the club had 263 members and 62 boats over four classes: special class (16 feet and under, any rig); catboats (16-23 feet); 2nd class sloops (under 21 feet); and 1st class sloops (21-23 feet). In 1965, the Wayzata Yacht Club (WYC) was established on the north shore of the bay at the site of the former Wise Boat Works, a clubhouse was constructed there in 1981, and the nearby marina was acquired in 1985 (Kunz 1982, 12-13, 17, 19, 25, 28-29; McGinnis 2010, 303; Wayzata Yacht Club 2012).



The 1885 Champion Sloop pennant for the Minnetonka Yacht Club (MNHS 2004.46.1).

Mid-20th Century Recreational Boating

The powerboats of today evolved from the low-horsepower, heavy, and relatively slow steam launches of the late 19th and early 20th Centuries. The development of the gasoline engine in the 1890s meant traditional steam launch hull shapes were inadequate for the greater power offered by these engines. With the rise in popularity of racing competitions powered by boats with gasoline engines during the 1910s and

1920s, pioneering naval architects such as John Hacker and Chris Smith developed vessels with V-bows, hard chines, and flat bottoms that met with little resistance going through the water. This design is common in boat designs of today. During the 1920s the number of privately owned powerboats increased dramatically because they were more and more affordable to average Americans. Though the Depression saw the demise of many small boat-building firms, the post-World War 2 era of prosperity brought with it a new demand for fast powerboats (Merriman and Olson 2013b, 4-5).

By the mid-1950s ownership of personal watercraft by residents around Lake Minnetonka (and in Minnesota in general) was undergoing a surge. In spring 1956, boat yards around Lake Minnetonka – All Sports, Inc., Cochrane's Boat Yard, Minnetonka Boat Works, Richards Marine, and Tonka Bay Boat Works – were bustling with activity. New boat sales, used boat sales, and the 'fitting out' of dry-docked vessels at these busy boating establishments led one of Cochrane's long-time employees to muse "Figure it out yourself. There are...110 miles of shoreline around Minnetonka, and everyone who lives on the shore as well as those half a mile back have boats of some kind. And if they haven't owned them in the past, they're getting them this year". It was estimated that there were more than 500 cruisers in the 18-50 foot range, 600 smaller runabouts, about 100 sailboats, and uncountable rowboats, canoes, skiffs, and flat-bottomed boats on Lake Minnetonka. With these numbers in mind, it is not surprising that the Hennepin County Sheriff teamed up with local residents around Lake Minnetonka to form a Lake Patrol. Hennepin County Sheriff Captain E. R. Wenell recognized that "Lake Minnetonka has been getting to be a bigger and bigger problem every year". The towns and communities around the lake that comprised the 'League of Lake Minnetonka Municipalities' (LLMM), along with the Sheriff's Office, wrote a Uniform Code of Regulations to promote boat safety, educate boaters, halt risky activities that endangered boaters, water skiers, and property, reduce pollution, and mandated the use of boat lights at night. Initially, the Lake Minnetonka Patrol (later the Hennepin County Sheriff's Water Patrol, HCSWP) utilized 21 boats owned by their cadre of 24 trained and deputized volunteers who were recognized by their patrol cap, badge, and the white and blue flags their boats flew that featured a sheriff's star. The lake was partitioned into five zones and each zone had five patrol boats on duty during the weekends and in the evenings beginning in early June 1956. The volunteers carried an array of safety equipment with each patrol boat that would assist them during water rescues and the flotilla shared one two-way radio among them. Early on the Lake Minnetonka Patrol's statistics indicate they were immediately busy giving warnings to boats anchoring without lights or being anchored inside a channel, for reckless boating and speeding, water skiing, tubing, and fishing in channels. The Patrol also rescued people from a sinking boat and responded to reports of drownings, boats stuck on 'reefs', and stolen watercraft and property. The group also cleaned obstructions out of bays and channels and they located a sunken boat in Carson's Bay. Initially the Lake Patrol did not issue tickets that resulted in monetary fines for violations, but by mid-July, the Patrol issued their first six tickets (Merriman and Olson 2013b, 5; *Minnetonka Herald* 1956a-i).



The Department of Conservation recognized the importance of the Lake Minnetonka Patrol's successful safety programs and use of volunteers. This cartoon was featured in a 1958 public relations campaign designed to acclimate Minnesotans to the activation of the up-coming Minnesota Boat and Water Safety Act (Department of Conservation 1958, Minnesota Historical Society, digitized by MHM).

In late September 1956, the inaugural season of the Lake Patrol was lauded by local and State authorities – including the Governor and Commissioner of Conservation – and its first annual report boasted impressive statistics. In total, 28 boaters were arrested for speeding or water skiing through channels, drunken boating, and 'careless piloting', while 425 warnings were also issued. Further, the Patrol's activities were being extended over the winter due to the availability of equipment appropriate for use on a frozen lake. Throughout the season, the Patrol distributed copies of the Lake Minnetonka safety ordinances to ignorant boat owners as part of their education program and to assist in law enforcement. In the end, 80% of the Patrol's first year violators were boaters who did not live on Lake Minnetonka and after the season the ordinances were going to be more widely distributed. Other Hennepin County patrols had been organized over the summer and efforts also spread to Leech Lake in Cass County and Forest Lake in Washington County. Plans were also in the works for a patrol in Anoka County and on the Mississippi River. In addition to local acknowledgement of the Lake Patrol's success, the organization's efforts were being emulated as far away as Texas and the FBI published an article about the Patrol's policing (Merriman and Olson 2013b, 6; *Minnetonka Herald* 1956j).

Since 1956, newspapers have reported on the HCSWP's involvement in property theft cases (most often boats and motors), rescue, collision, injury, and sinking incidents, investigations of boat explosions, and comprehensive community-based boat safety programs. From these beginnings, the Lake Minnetonka Patrol served as a template for other counties and the State of Minnesota to develop boat safety programs and increase the enforcement of laws on the State's bodies of water. The establishment of a county-sponsored boat safety and law enforcement unit that was dependent on community involvement for its success set the groundwork for statewide uniformity of boat regulations. It is not an over-statement to suggest that the development, growth, and acceptance of the Lake Minnetonka Patrol's authority – and success – facilitated the creation of the Minnesota Boat and Water Safety Act (MBWSA) of 1959 (Merriman and Olson 2013b, 6).

Minnesota Boat and Water Safety Act of 1959. On July 1, 1959 the Minnesota Boat and Water Safety Act (MBWSA) went into effect. On that date, all motorized watercraft were required to display an identification (also called a license or registration) number on both sides of her bow. The original draft document of the 'Small Boat Act' has survived and it is interesting to compare the language produced by the Boat and Water Safety Committee (the group formed to suggest boat regulations in Minnesota) with the actual act passed by the Minnesota Legislature. Further, supporting documentation produced by the State indicates the Lake Minnetonka Patrol was the actual inspiration for statewide regulation and licensure of watercraft. A 1958 brochure from the Department of Conservation and the Boat and Water Safety Committee recognized that the Minnesota Legislature was stalled on action in relation to a comprehensive safety and regulatory act. The Department and the Committee exploited Minnesota's Centennial celebration that year to stress the efforts of the Lake Minnetonka communities and their successful volunteer cooperative in terms of boat safety. The brochure urged volunteer community action that would emulate the Lake Minnetonka Patrol's program – an effort also promoted by the State Sheriff's Association (Department of Conservation 1958). This pressure must have had an effect since the Minnesota Legislature passed the MBWSA soon after. For the identification of Lake Minnetonka wrecks, the most significant section of the law pertains to the mandatory display of a boat's registration number on both sides of the bow (Department of Administration 1959, 947-949, 956-957; Merriman and Olson 2013b, 7-8).

The Boat and Water Safety Committee's suggested language for the new law was more specific and simply expressed with statements like "every motorboat on the waters of this state shall be numbered. No person shall operate or give permission for the operation of any motorboat on such waters unless the motorboat is numbered in accordance with this act". Also clear was the suggestions that each "owner shall paint on or attach to each side of the bow of the motorboat the identification number in such manner as may be prescribed by rules and regulations...in order that it may be clearly visible. The number shall be maintained in legible condition...No number other than the number awarded to a motorboat or granted reciprocity pursuant to this act shall be painted, attached, or otherwise displayed on either side of the bow of such motorboat" (Committee of State Officials on Suggested Legislation, 1958; Merriman and Olson 2013b, 8).

When the MBWSA went into effect, the Commissioner of the Department of Conservation was responsible for assigning boat identification numbers and maintaining those records through the Minnesota Bureau of Boat and Water Safety (MBBWS). Boat owners were responsible for renewing their licenses and by mid-1964, the MBBWS was compelled to remind boaters through the media to check their expiration dates. It is interesting that although "current procedure gives boat registrants one full year to renew after license expiration" before a vessel owner would lose their number, "all unused boats must be renewed before December 31, 1964, in order to keep the same number". This grace period gave boat owners an extra year to keep their boat license if they had not, for whatever reason, launched their boat during 1964. In March 1972 the MBWSA was amended to include the licensure of canoes and sailboats in addition to motorized

watercraft. In January 2013 the MBWSA was further amended to exempt non-motorized watercraft under 10 feet in length from licensure. In 1971 the Department of Conservation became the Department of Natural Resources (DNR) and from then, the DNR has been responsible for boat licensing in Minnesota. Unfortunately for the maritime history of Minnesota, specific boat registration data from 1959-1972 have not survived (*Deephaven Argus* 1964; Department of Natural Resources 2013, 1; Merriman and Olson 2013b, 8-9; *Mound-West Tonka Minnetonka Sun* 1972).

This lack of historical documentation has often made establishing the sinking dates of more recent wrecks difficult, even in comparison to wrecks that sank 100 years ago. Newspaper and other historical accounts of steamboat and gas launch accidents, explosions, or burnings are rather plentiful and detailed. In contrast, more recent accounts of boat accidents, explosions, and sinkings are often reported by the press, but the pertinent details such as watercraft model and age are not revealed – and many accidents and sinkings went unreported all together. It is suspected that often authorities were not contacted after some incidents if alcohol was involved, boats were operating illegally without lights, or if a watercraft did not meet State standards for safety. Several wrecks have been located that have registration numbers on their bow that are not recorded in the DNR database – meaning they sank between July 1, 1959 and 1972. An argument can be made that a wreck may have had a registration number on her hull but that it has not survived over the decades. However, it has been discovered that even if a vessel once had a number, remnants of it or a shadow of the number or letter does survive in the cold, fresh water of Minnesota's lakes. However, year stickers that are of lesser quality than boat registration decals are often illegible, but sometimes they do remain intact – and of course this greatly benefits research efforts (Merriman and Olson 2013b, 9).

One beneficial tool that can be used when determining a wreck's registration date is the actual sequence of numbers themselves. For example, during the initial implementation of the MBWSA in 1959, the license numbers were assigned in this order: MN 0001 AA, MN 0002 AA, MN 0003 AA and so on. With this known, the last registration in the 'AA' series would be MN 9999 AA, meaning that each double set of letters would have 9,999 licenses associated with them. However, the letter combination 'AO' was not used in assigning registration numbers because 'O' could be confused with zero. Therefore, in the 'A' series (AA-AN and AP-AZ) there would be 249,975 watercraft licenses issued (John Nordby, personal communication, 3 October 2013; 11 December 2013). During the 1959-1960 registration period, an impressive 157,767 personal watercraft were licensed in Minnesota. During this time the last number and letter sequence to be assigned would have been MN 7782 AQ. Another indicator of early watercraft license numbers comes from the Minnesota Bureau of Boat and Water Safety in August 1964. The Bureau issued a warning to boat owners, a reminder to renew their boat licenses by year's end, including watercraft that had been assigned letter sequences within the BA-BH range that were issued in 1962. Therefore, any wrecks discovered whose letter series falls within that range were newly registered in Minnesota in 1962 (*Deephaven Argus* 1964; Merriman and Olson 2013b, 9-10; Sprouse 2005, 7).

Although Lake Minnetonka residents have seen decades of violent storms and weather, two tornadoes on May 6, 1965 caused significant damage to property – including the destruction and sinking of watercraft. Six tornadoes on that day caused the greatest amount of property damage to the Twin Cities area that had been recorded up to that time, Lake Minnetonka's communities included. Four F4, one F3, and one F2 tornadoes moved through seven counties of the metropolitan area in just over two hours. Tornado #1 was an F4 storm and greatly affected Upper and Lower Lake Minnetonka through to Navarre. Tornado #2, the 'Deephaven tornado', was also an F4 storm and affected Lower Lake Minnetonka (National Weather Service 2010). In regards to watercraft, the boat registration system was invaluable to boat owners as it took weeks to clear damaged boats from storage buildings on Carson's Bay that were destroyed by the storm, and from marinas around the lake. As it was characterized, "some residents could not find their boats...[that were] blown away in the storm". The HCSWP issued warnings to boaters concerning debris floating in every section of Lake Minnetonka. In early June 1965, the director of the MBBWS instructed boat owners to report their destroyed boats to the Department of Conservation so the license numbers could be inactivated and that transferring a number from one boat to another was illegal. Further, all replacement watercraft required registration before they could be operated on any body of water in Minnesota. By mid-July the lake communities were recovering from the storms, including the "Old Minnetonka Boat Works storage building, long a landmark on Carson's Bay in Deephaven before the May 6 tornado dumped it into the lake, will be rebuilt on the same site....The old barn-like structure housed 135 boats...but the new building will not have as great a capacity" (*Deephaven Argus* 1965a-d; *Minnetonka Herald* 1949, 1951b, 1952, 1955a; 1964; *Minnetonka Record* 1965a).

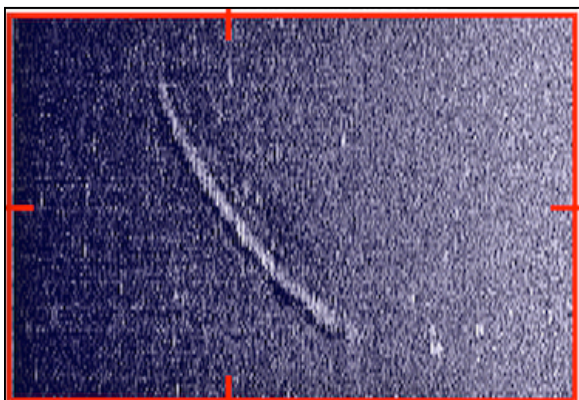
Associated Property Types

In the late 19th and early 20th Centuries, numerous vessels were constructed for the purpose of transporting tourists to different points around Upper and Lower Lake Minnetonka, often as a packet service. Further, personal watercraft were constructed locally for lake residents and boats were imported from nationally-known manufacturers, as well as from many lesser-known companies for recreational activities. These wrecks are classified by their engine type and means of propulsion:

1878 *Saucy Kate* Wreck (21-HE-420)

Propeller steamer *Saucy Kate* was constructed from the remains of 45-foot *Kate/Katie May*, a steamboat owned by Captain Charles May. *Katie May* sank in Robinsons Bay when her boiler exploded on June 23, 1877, killing three of the five men on board. The *Katie May* was raised later that summer. Apparently her builder Maurice Godfrey incorporated the engine and sections of *Kate/Katie May's* bow and stern into the new *Saucy Kate* and she was launched in mid-June 1878. Throughout the 1880s, *Saucy Kate* provided transportation to thousands of Lake Minnetonka tourists and residents. In the 1890 season, *Saucy Kate* was the first steamer to announce regular lake packet service beginning on May 25, meeting the Great Northern Railway train at Minnetonka Beach on Lafayette Bay and again meeting the train in Spring Park on the Upper Lake later in the day, providing passengers with a lake excursion or point-to-point transportation, whichever was desired. For the next few years, *Saucy Kate* reliably carried passengers on scheduled routes and on special occasions from the Upper to Lower Lake. *Saucy Kate* had a long working life on Lake Minnetonka, finally being sold to Captain John R. Johnson on July 24, 1897. On September 8, 1899, *Saucy Kate* caught fire at Solberg's Point while secured to a barge fashioned from part of the hull of the *City of St. Louis*. The barge sustained substantial damage but was saved, while *Saucy Kate* could only be

towed away from the shore and let to burn. She sank nearby, with only her "smoke stack, the upper part of her engine and boiler and her charred gunwales" visible above the lake surface. The wreck was raised and moved to deeper water since she was a hazard to navigation. Her new location was reported to be in "deep water off Gale Island", but this account was erroneous. *Saucy Kate* was the oldest steamer on Lake Minnetonka at the time of her sinking and had been characterized as "one of the most popular boats on the lake". The wreck was identified in 2013. Little sunlight reaches the wreck but with strong underwater lights, some of the wreck can be seen. The wreck is mostly buried on her port side and at the stern, has burned gunwales forward and has an intact – although charred – stempost. The stern is rounded and a large aft rubrail overhang has survived. The wreck has at least one wooden cleat and a sizeable scarf in her gunwale's construction (Lake Minnetonka Navigation Company 1897; McGinnis 2010, 135; Merriman and Olson 2013b, 11-16).



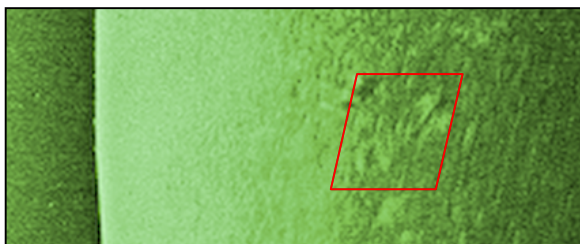
Sonar image of the *Saucy Kate* Wreck (MHM).



Saucy Kate in September 1889 (MNHS Album 111 #31, digitized by MHM).

Wayzata Bay Rowboat Wreck (21-HE-417)

The Wayzata Bay Rowboat Wreck is 16 feet long, 3.5 feet in the beam, and the gunwales and stern are degraded. There are seats (thwarts) buried in a thin layer of silt and at least one metal support for a seat is extant. The wreck has a seat back with thin supports that originally attached to both stern gunwales, a trait for the Moore Boat Works 'Special Finish, High Grade Family Row Boat', model No. 30 in their 1908 catalog (Moore Boat Works 1908, 20). The main difference between the Wayzata Bay Rowboat Wreck and No. 30 is the bow design. The wreck has a simple triangular piece that acts as the foredeck and No. 30 has a smooth and elegant design that incorporates the foredeck with the gunwales in a rounded curve. MHM contends the Wayzata Bay Rowboat Wreck is an earlier version of No. 30 and would be slightly more easily constructed. The amount of degradation to the wreck, particularly both gunwales and the stern, and the amount of silt build-up indicates the wreck has been on the bottom of the lake for a substantial amount of time, and probably sank around 1900 (Merriman and Olson 2013a, 16-18).



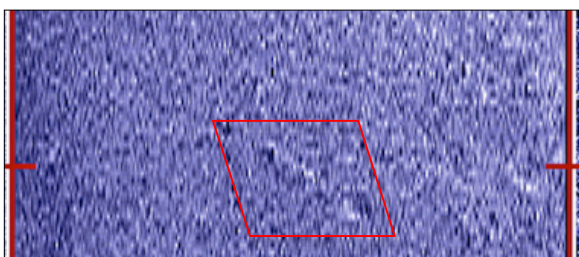
Above: Sonar image of the Wayzata Bay Rowboat Wreck (MHM).



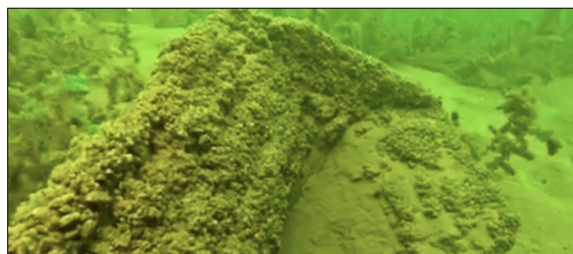
Right: The wreck's bow (Mark Slick).

St. Louis Bay Wreck (21-HE-422)

The unpowered St. Louis Bay Wreck is 22 feet long, 6 feet wide, and is a large clinker-built (constructed with over-lapping hull planks, often called lapstraked) rowboat. The condition of the St. Louis Bay Wreck is similar to that of other rowboat wrecks in Lake Minnetonka – the Wayzata Bay Rowboat Wreck and the Gideon Bay Wreck. All three are similarly degraded, an indication of their light construction and possibly due to the fact that they were built of softer wood in comparison to other vessels; rowboats were often cheap and not expected to last long. The St. Louis Bay Wreck's starboard side is less degraded than the port side and the ridges of the clinker-constructed hull can be seen in the 'waviness' of the zebra mussels attached to it. The wreck has a small foredeck, a diagnostic attribute, and her stern is a distinctive wineglass transom design. The wineglass transom and the wreck's length have led MHM to hypothesize that she may have been part of the Hotel St. Louis rowboat fleet. The St. Louis Bay Wreck does not appear in the Wayzata-based Moore Boat Company or Ramaley Boat Company catalogs for 1908-1912, suggesting she was constructed earlier. Further, photographic evidence is abundant showing boats of the same size as the wreck plying Lake Minnetonka from the late 1870s, usually associated with boarding houses and hotels that kept fleets of rowboats for the enjoyment of their patrons (Merriman and Olson 2013b, 17-18).



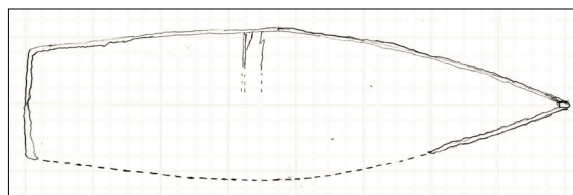
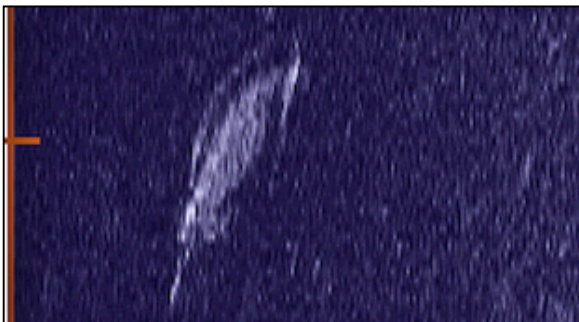
Sonar image of the St. Louis Bay Wreck (MHM).



The wineglass stern (Kelly Nehowig).

Gideon Bay Wreck (21-HE-415)

The Gideon Bay Wreck is 16 feet long, 4.50 feet wide, and has a wineglass transom like the St. Louis Bay Wreck (21-HE-422). Unlike that wreck, the Gideon Bay Wreck is carvel planked (hull planks are fastened edge to edge). The wreck may have been built by the Moore Boat Works prior to 1912 or the Ramaley Boat Works between 1912-1920, but the wreck is likely older. Various forms of rowboats were constructed for decades by a variety of local boat-builders for individual families, fishermen, and as parts of rowboat fleets owned by hotels (Merriman and Olson 2013a, 18-20, 2014b, 44-45).



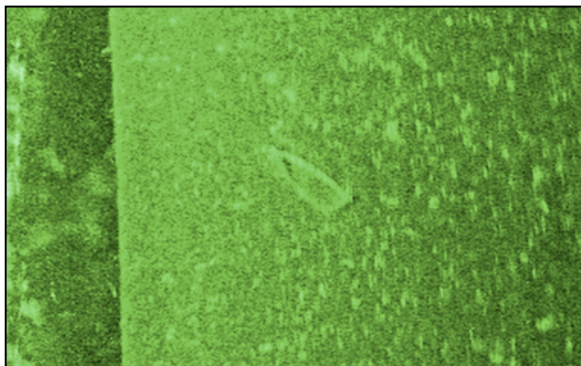
Above: A sketch of the Gideon Bay Wreck (Christopher Olson).

Left: Sonar image of the Gideon Bay Wreck (MHM).

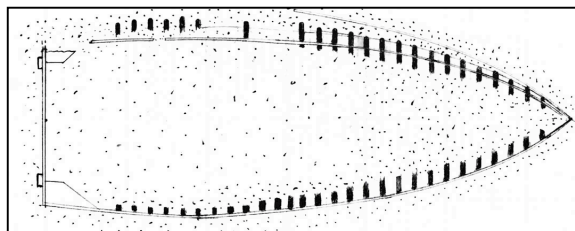
Crystal Bay Rowboat Wreck (21-HE-457)

The Crystal Bay Rowboat Wreck site is 13.00 feet long, 5.00 feet wide (the boat when floating had a narrower beam since the port side aft of the wreck has separated from the transom and fallen away a bit). The wreck is carvel-built (plank ends are attached edge-to-edge) with a square stern that has triangular braces on the port and starboard aft quarters at the gunwale level. The wreck's starboard gunwale is degraded, but overall, the wreck is relatively intact regardless of its degraded wood. The vessel was constructed with numerous thin frames and futtocks that are clearly seen along the

wreck's sides, with stringers running along the inner hull for longitudinal strength. Near the bow, a caprail survives on the port side gunwale. The square transom has two carrying handles attached on the port and starboard sides. There must have been thwarts that acted as seats and athwartships support that are no longer extant. The vessel was constructed between the 1880s and the early 1900s, and likely sank prior to 1910 (Merriman and Olson 2015c).



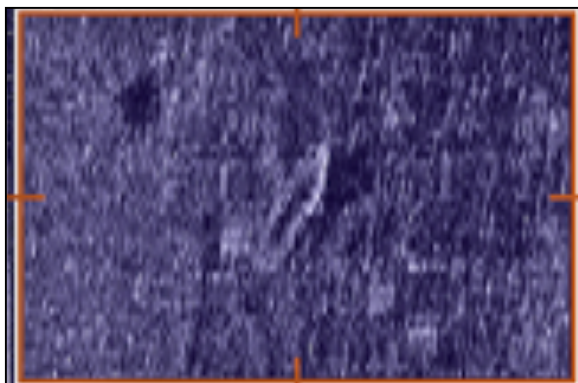
Sonar image of the Crystal Bay Rowboat Wreck (MHM).



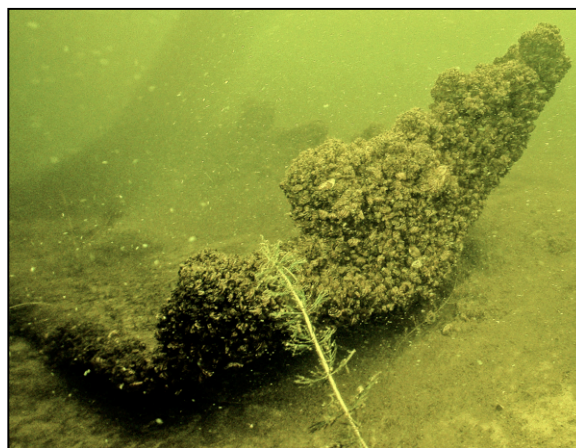
A sketch of the Crystal Bay Rowboat Wreck (Christopher Olson).

Maxwell Bay Rowboat Wreck (21-HE-469)

The Maxwell Bay Rowboat Wreck site is 15.70 feet long, 3.70 feet wide, with a 3.20 wide transom. The wreck is carvel-built and extremely degraded, with the port side aft quarter nearly gone, as well as both sides of the stempost. The square transom partially survives. The vessel was constructed between the 1880s and the early 1900s, and likely sank prior to 1910 (Merriman and Olson 2015h).



Sonar image of the Maxwell Bay Rowboat Wreck (MHM).

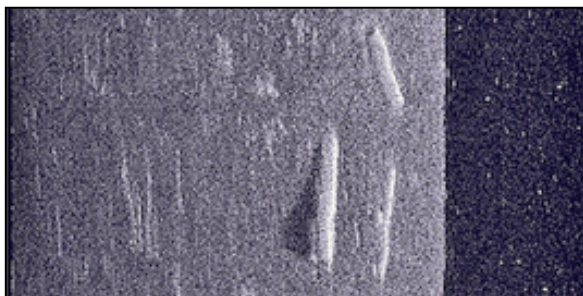


The degraded stern of the Maxwell Bay Rowboat Wreck (Mark Slick).

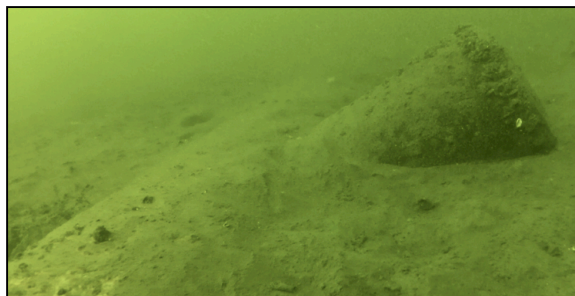
Marine Launch Boilers Site (21-HE-421)

The three riveted horizontal steel marine launch boilers that comprise this site are the only steam power plants to survive from Lake Minnetonka's steamboat heyday. Boiler 3 is 3 feet in diameter and 12 feet long. It is a fire tube boiler sitting on the lake bottom upside down whose smoke box is missing. It has a minimum of 23 tubes running longitudinally through the boiler's body. Its manhole cover is intact and has two bridge clamps holding it in place. Boiler 3 is a single pass fire tube boiler since the gases of combustion pass only once through the fire tubes that run horizontally through the length of the boiler. Boiler 1 is 3 feet in diameter and 10 feet long. The shape of Boiler 1 is consistent with fire tube boiler design due to its steam dome. It seems that Boiler 1 has been gutted as is

evidenced by its open end and apparent hollowness. Boiler 2 is 3 feet in diameter and 8 feet long. It is also upside down and has drainage holes evident like Boiler 3 although some may be obscured and it is gutted like Boiler 1. Boilers of this size in a marine context are referred to as 'launch boilers' – and Lake Minnetonka was rich with medium-sized steam launches. These three launch boilers represent the only known surviving Lake Minnetonka marine boilers that were utilized during the lake's heyday of steam navigation (Merriman and Olson 2013b, 19-22).



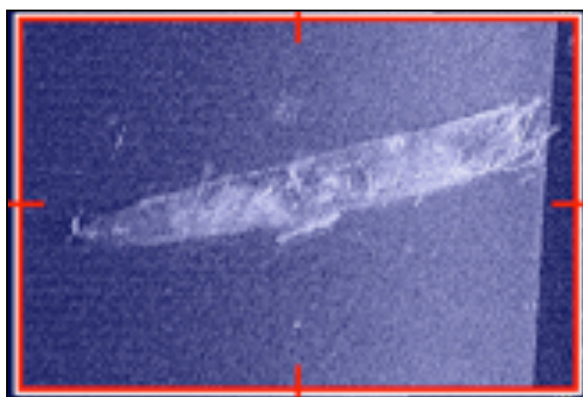
Sonar image of the Marine Launch Boilers Site (MHM).



Boiler 1 (Kelly Nehowig).

1901 *George/Excelsior* Wreck (21-HE-399)

Maurice Godfrey and George Day constructed the sternwheeler *George* in 1901. She measured 125 feet long and 22 feet in the beam and was re-designed in 1904 and re-named *Excelsior*. She operated on Lake Minnetonka, becoming one of the Twin City Rapid Transit Company excursion vessels in 1906. She was burned as a spectacle on August 9, 1909, with 5,000 people gathering to watch her demise. *George/Excelsior* was labeled the 'Unknown Stern-wheeler' wreck during the SHPO-sponsored survey of Lake Minnetonka. The *George/Excelsior* Wreck's deck is partially intact and many of her construction attributes are extant, regardless of her burned condition. On her foredeck, an H-bitt and flagpole are intact, her gunwale survives along the entirety of the wreck, and both her cylinder timbers survive at the stern (Hall, Birk, and Newell 1997, 28, 58; McGinnis 2010, 90; Merriman and Olson 2012a, 29, 2015d; *Minnetonka Record* 1912a).



Sonar image of the *George/Excelsior* Wreck (MHM).



A view toward the bow of the *George/Excelsior* Wreck (Kelly Nehowig).

1906-2003 Big Island Steamboat Pier, Amusement Park, and Veterans Camp (21-HE-402)

The Big Island Amusement Park was constructed during 1905-1906 by the TCRT. The development of the park depended on the construction of an incredible amount of infrastructure such as dredging the bay for steamboat traffic and strengthening the shoreline, steamboat pier construction, the placement of electrical lines and conduits, sewers, and a well, the grooming of walkways with pergolas, the placement of benches, and building construction. The Spanish Mission-style buildings

consisted of a water tower, commissary, women's and men's dormitories, toilets, music hall, staff kitchen, a pump house, ice house, boat house, and picnic kitchens. The amusements constructed for visitors included a roller coaster, old mill ride, 'fun factory', carousel, picture gallery, kinetoscope, and a hooligan slide, along with 48 Johnson rowboats for use in the bay. The Park was open between 1906 and 1911; ultimately, the Park was unprofitable and was mostly dismantled during 1918, with metal recycled for use during World War I. In 1923, the Big Island Veterans Camp was established as a quiet place for World War I veterans and their families, and some years later it was opened to all veterans. An examination of the roller coaster base area, the contours of the old mill ride, and an extensive walking survey of the island was completed in 2007. At that time, many foundations of the Big Island Amusement Park buildings and amusements survived, along with infrastructure constructions. The City of Orono purchased the land by 2006 and since that time, most of the Veterans Camp buildings have been demolished. Also in 2007, a brief archaeological survey of five mission-style arch bases was conducted and the Steamboat Pier remains were recorded (Construction Records: Ledgers, TCRT Records 1906-1908, 509, 513, 515-517, 519; Merriman and Olson 2007, 2012a, 43-47; *Minnetonka Record* 1906c-e; Olson 1976, 202-203, 205).



Big Island Amusement Park (MNHS MH5.9ORp18).



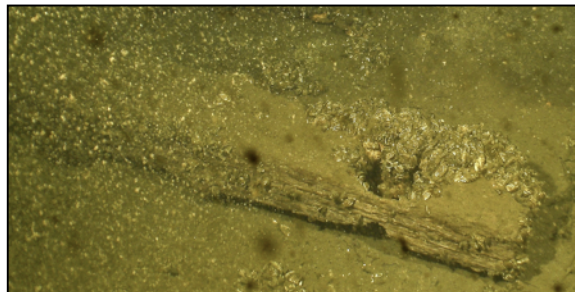
Big Island Amusement Park (post card).

Wooden Sailboat Mast or Boom Site

The Wooden Sailboat Mast or Boom Site is 16.1 feet long by .50 feet square in cross section. The wood is tapered at the top with a hole drilled through to receive a line. A line is attached to the artifact but it does not thread through the hole (Merriman and Olson 2015g).



Sonar image of the Wooden Sailboat Mast or Boom Site (MHM).

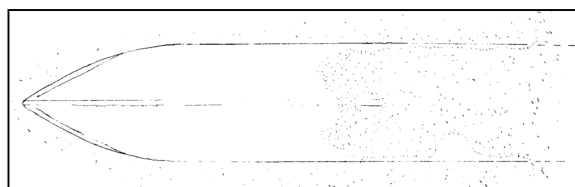


The tapered end with the hole drilled through it of the Wooden Sailboat Mast or Boom Site (Mark Slick).

Capsized Wooden Boat Wreck (21-HE-418)

The capsized Wooden Boat Wreck is partially buried in lake silt, is approximately 28 feet long, has a hard chine, and a substantial forward keel that disappears into a 4 foot-wide nearly flat bottom at amidships and aft. At this point the keel resembles a ridge and not a traditional-looking keel that drops below the hull of a boat. The beam is approximately 5-6 feet, and the wreck was not a sailing vessel – she is too large, too heavy, her flat bottom combined with the deep keel at the bow would make her sluggish, and she has no fin keel. She was powered by steam, gasoline, or she may be a

naphtha launch. The starboard side bottom of the wreck has surviving black paint and on the port side bottom white paint survives. Most of the wreck's paint has degraded above the silt line, exposing the vessel's wood screw pattern. During the probing to locate the stern – whose shape is still undetermined – a possible hole in the hull's bottom was located that may explain why the boat did not right herself during the wrecking process. The vessel's sturdy, heavy wood construction and the use of slotted wood screws that are evident throughout the hull's bottom indicates she was built prior to the common use of Phillips head screws by the mid-1930s (Merriman and Olson 2013a, 20-24; Rybczynski 2000, 83-84).

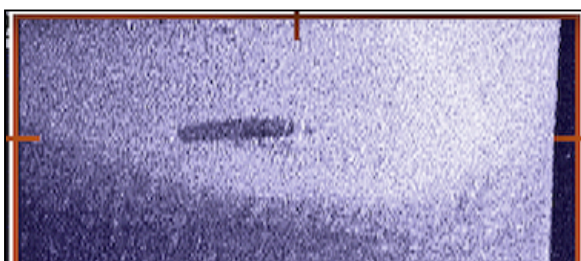


Above: A sketch of the Capsized Wooden Boat Wreck (Christopher Olson).

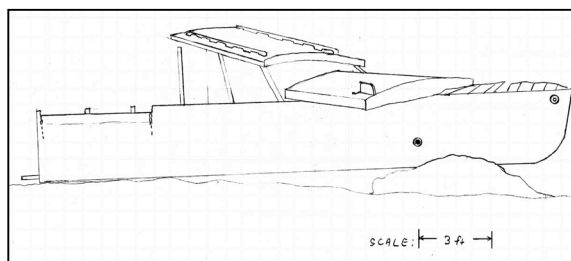
Left: Sonar image of the Capsized Wooden Boat Wreck (MHM).

Wooden Trunk Cabin Cruiser Wreck (21-HE-446)

The Wooden Trunk Cabin Cruiser Wreck is 22.00 feet long and 6.50 feet wide with a flush foredeck, 1 port and 1 starboard porthole near the bow, and a square transom. The hull was painted white and the bottom of the hull has a significant amount of grey anti-fouling paint still extant. A splash rail is attached to the outer hull just under the gunwale amidships and extends diagonally to the stern. The joint where the hull's sides meet the stern is covered with a metal strip. On the port side of the transom, one strake has extensive dry rot that occurred prior to sinking and is an indicator of age and wear and the starboard quarter gunwale is damaged. The wreck has a forward trunk cabin and an open amidships cabin section with a canopy extending aft, with hand rails on top. The trunk cabin and canopy are dislodged and have collapsed onto the starboard side. Just above the waterline forward of amidships on the starboard side, a through-hull hole exists that may have allowed the discharge of toilet water. This hole was plugged with a rectangular piece of wood prior to the boat's disposition on the lake bottom. At the transom stern on the starboard side a similar rectangular piece of wood is wedged into the round exhaust hole. On the port side bow above the waterline, a jagged hole is punched through the hull. This hole would allow water to enter the boat in calm waters if the vessel was moving. The wreck's inboard engine, which would have been located inside the open cabin amidships, was removed prior to the vessel's sinking. MHM contends the boat was stripped of her engine, windows, and some fittings, the toilet discharge hole and exhaust hole were plugged in order for the vessel to be towed successfully, unwanted wood and other items were placed in the hull, and a hole was punched into her port side bow sending her to the bottom of the lake. The wreck's damaged condition – her dislodged trunk cabin, open cabin, and canopy, and her damaged port side gunwale – probably occurred when she hit the lakebed hard (Merriman and Olson 2014b, 14-17).



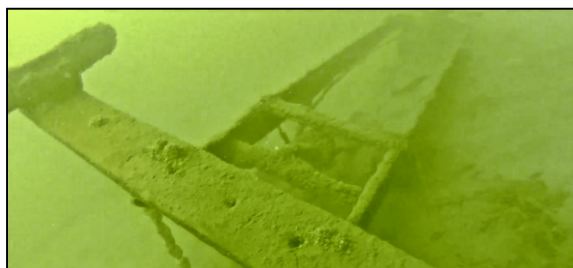
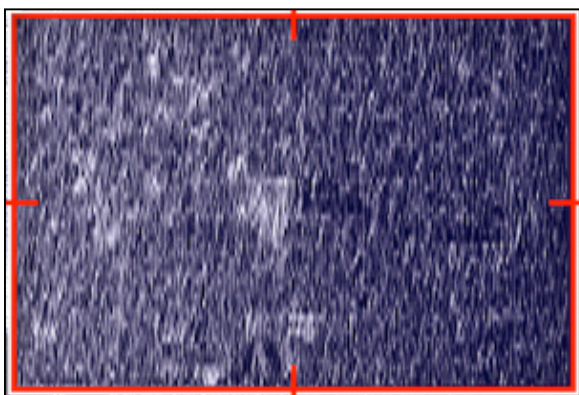
Sonar image of the Wooden Trunk Cabin Cruiser Wreck (MHM).



Sketch of the Wooden Trunk Cabin Cruiser Wreck (Christopher Olson).

Wayzata Bay Motorized Ice Boat Wreck (21-HE-416)

The Wayzata Bay Motorized Ice Boat Wreck is approximately 9.5 feet long and 7 feet wide and is constructed of wood. The wreck is tipped over, with two runners – the port and aft runners – above the lake bottom in the water column and the third – the starboard runner – is slightly buried in silt. Indications that the ice boat is motorized are the presence of the steering column on the underside, the surviving engine mounts, and the shorter length of the vessel. Sail-powered ice boats are long and light weight while the Wayzata Bay Motorized Ice Boat Wreck is stubby and wide for her length. Motorized ice boats were first constructed in New York beginning in 1911. In Minnesota, Charles Lindbergh and two of his friends constructed motorized ice boats using motorcycle engines and raced them on Lake Mendota in 1921-1922 (Davis 1959, 73-74; Merriman and Olson 2013a, 25-27).



Above: The bottom of the Wayzata Bay Motorized Ice Boat Wreck (Kelly Nehowig).

Left: Sonar image of the Wayzata Bay Motorized Ice Boat Wreck (MHM).

Damaged Bow Utility Wreck (21-HE-447)

The gasoline-powered Damaged Bow Utility Wreck is 15.6 feet long with a 63-inch beam with an inboard marine engine enclosed in a dog house on deck. Her port side bow is destroyed and separated from the gunwale. The starboard bow is damaged and the 'M' in 'MN' of her registration number is attached to the hull; the shadow of the 'N' is evident. A section of the wreck's stempost survives and is attached to a piece of the starboard hull that was pushed into the bow space during the wrecking process. A smaller piece of the bow (with a fragment of the stempost still connected) where the majority of the registration number had been affixed to the hull, but is now mostly missing, was located lying on the lake bottom. The last letter of the registration, an 'L', is extant and the shadow of an 'A' is also apparent. Therefore, the partial number is MN _ _ _ AL indicates the boat first registered with the State in 1959. The undamaged starboard side of the hull aft of the extant 'M' has no evidence that it had a State year validation sticker adhered to it (Merriman and Olson 2013b, 35-39, 2014b, 22-24).



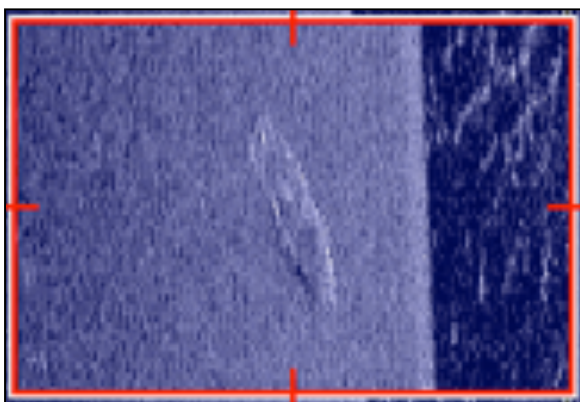
Above: Sonar image of the Damaged Bow Utility Wreck (MHM).

Right: A view from the port bow of the Damaged Bow Utility Wreck (Ed Nelson).



Correct Craft Utility Wreck (21-HE-467)

The Correct Craft Utility Wreck sank after July 1, 1959 and before 1962 due to the lack of a year validation sticker. The visible parts of her wooden hull are in exceptional condition but she is buried in silt nearly to her gunwales, so her bottom hull cannot be assessed for damage that may have occurred in a collision. The boat's cockpit is intact, as is her engine cover (dog house), although the dog house lid has been opened and lies on top of the front cockpit. Regardless of the presence of a cockpit, the wreck is a utility and not a runabout due to the open nature of the aft portion of the boat and the ability to walk around the dog house. All of the wreck's metal fittings - chocks, cleats, windshield frame, navigation lights, dashboard plate, step pad backs, mast light shaft and base, gas tank cover, and even the key - are all in place. All the rubber components that can be seen - the step pads - are extant. The plastic attributes that can be seen - the steering wheel (made of bakelite?) - is intact. MHM cannot determine the reason for her sinking at this time (Merriman and Olson 2015b).



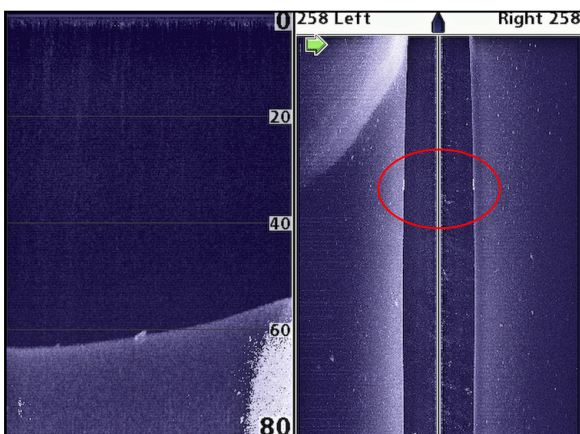
Sonar image of the Correct Craft Utility Wreck (MHM).



Correct Craft Utility Wreck (Kelly Nehowig).

1948 Century Deluxe Utility Wreck (21-HE-423)

The gasoline-powered Century Deluxe Utility Wreck has a propeller turned by an inboard marine engine enclosed in a dog house on deck and is 17-feet long. There is no registration number on her bow and no evidence that a number was ever applied to the hull indicates the boat sank prior to mid-1959. It is unknown why she sank but intentional scuttling is improbable due to the presence of her fittings - chocks, step plates, bow and stern eyes, navigation light, steering wheel, windshield, dashboard faceplate, gas tank cover, gas tank, upholstered fore and aft seats, and most importantly, her engine. The visible parts of her wooden hull are in exceptional condition but she is substantially buried in silt, so her bottom hull cannot be assessed for damage (Merriman and Olson 2013a, 27-30, 2013b, 22-25).



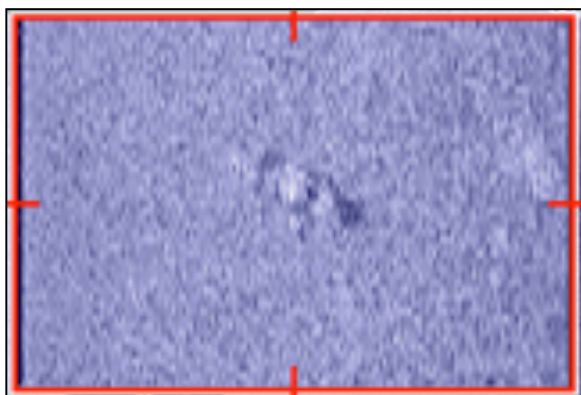
Sonar image of the Century Deluxe Utility Wreck (MHM).



The bow of the Century Deluxe Utility Wreck (Ed Nelson).

1949 Alumacraft Center Console Model R Wreck (21-HE-448)

The Alumacraft Center Console Model R Wreck is 11.58 feet long and 54 inches wide, but the site is 13 feet long due to the addition of a 1950 10 HP Johnson Super Sea Horse outboard motor. The wreck lies in a southwest to northeast orientation, with the bow pointing to the southwest. The wreck has an enclosed foredeck with a bow handle, two bench-style seats, a square transom, stern carrying handles, hull-length splash rails, windshield, fuel line, and gas tank. The boat sank in early June 1952, with 14 year-old Tony McKeown and Robert Odell on board when it capsized by a quartering wave (Anthony McKeown, personal communication, August 4, 2014; Merriman and Olson 2014b, 17-22; *Minnetonka Record* 1952, 1953).



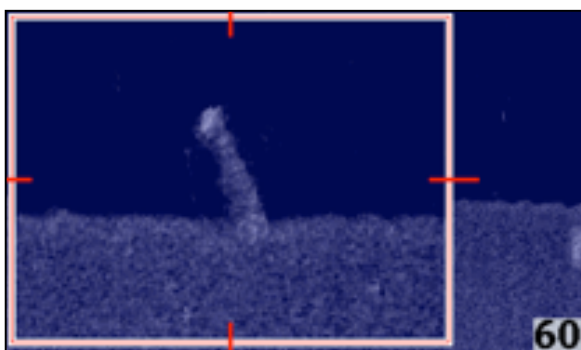
Sonar image of the Alumacraft Center Console Model R Wreck (MHM).



The Alumacraft Center Console Model R Wreck (Kelly Nehowig).

1949 Alumacraft Model A Wreck

The Alumacraft Model A Wreck is 14 feet long with a 29 inch beam amidships, has four seats, a bow casting designed for strength that incorporates a carrying handle, a hull-length splash rail, and 2 oarlocks on each gunwale. The wreck is standing on her stern in the water column, the outboard motor's powerhead is buried in the lake bottom, and the lower unit and propeller are protruding out of the sediment. Her registration number is MN 0512 AK, indicating she first registered in 1959, and she carries a blue Minnesota-shaped validation sticker from the years 1983-1984-1985. Her date of manufacture was 1949 (Merriman and Olson 2014b, 29-30).



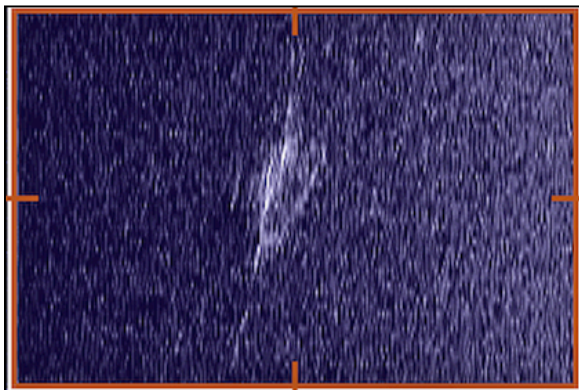
Above: Sonar image of the Alumacraft Model A Wreck (MHM).



Right: The Alumacraft Model A Wreck suspended in the water column (Kelly Nehowig).

1949 Alumacraft Model R Wreck

The Alumacraft Model R Wreck is 11.7 feet long and 54 inches wide, her registration number is MN 4757 AQ; on her port side, her number was affixed to the hull backwards. The wreck's registration letters, AQ, confirm she was first licensed in 1959 and last registered in 1979. She would have been powered by an outboard motor (Merriman and Olson 2013a 31-33, 2013b, 53-54).



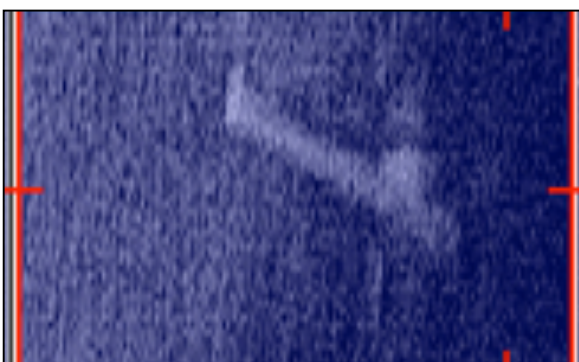
Sonar image of the Alumacraft Model R Wreck (MHM).



The Alumacraft Model R Wreck (Ed Nelson).

Two Early 1950s Weeres Pontoons

The design of two pontoons on the bottom of Lake Minnetonka suggests they were constructed by the Weeres Company – or at least inspired by Weeres – in the early 1950s. Ambrose Weeres of Richmond, MN, experimented with “steel barrels, welded together end to end” that supported a flat platform boat deck. Weeres produced “The Empress” in 1952 and with this success, Weeres Pontoons was founded and is still in business. One pontoon is comprised of 14 barrels welded end to end and reinforced with 7 metal straps that are visible; there may be more straps that are not discernible. There are 10 square holes cut into the top of the drums to accept wood supports for a flat boat platform. One end is buried in silt and it is apparent the 14th barrel is angling downward, suggesting a tapered end. Assuming that the 14th barrel is complete, the pontoon measures 39 feet long. The second pontoon is constructed similarly to the first one, although it is 14 feet long. This shorter pontoon is comprised of 5 barrels with 3 square holes on top to accept the platform supports and its end tapers (Merriman and Olson 2014b, 45-47).



Sonar image of one of the Weeres Pontoons (MHM).

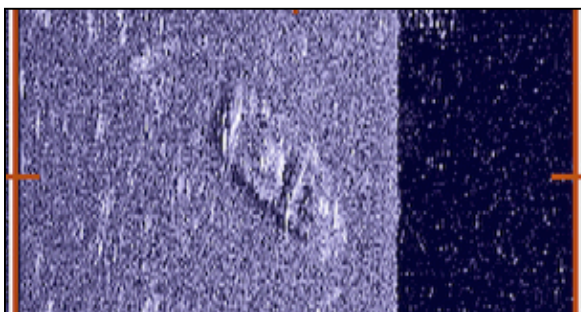


The drum end of one of the Weeres Pontoons (Kelly Nehowig).

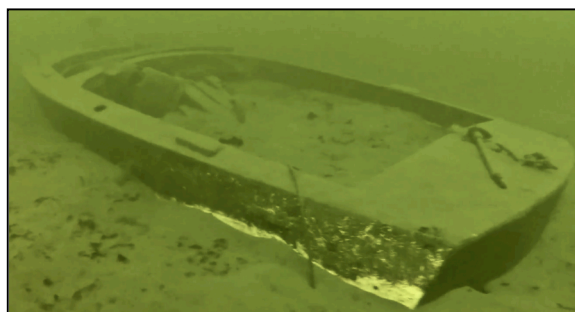
1954 Correct Craft Aqua Skier Deluxe Wreck (21-HE-424)

The Correct Craft Aqua Skier Deluxe Wreck is 17.33 feet long and 70.2" in the beam and the wooden hull is painted white. She has a clearly visible registration number on her port and starboard bow: MN 9571 AN in bold red metal letters and numbers. She also has two cursive "Correct Craft" emblems on her port and starboard aft quarters that are loose and bulging outward, not completely attached to the

hull. On her closed bow she has a bow eye, lifting eye, navigation light, radio antenna, and an Iva-Lite spotlight. The remains of a windshield with its brackets also lie on the foredeck. Four step plates that have the 'Correct Craft' emblem on them are attached to the gunwales on port and starboard just aft of the windshield and amidships aft. On both port and starboard aft there are two chocks and amidships there is a lifting eye with a line attached and an unattached mast light. The wreck has an intact dashboard with the appropriate gauges and an ignition switch set in a backing plate, a controller for the Iva-Lite, and an intact steering wheel with its throttle set to idle. The front seat is present while the aft seat may be missing or displaced. The engine cover is missing or at least open and the Gray Marine 110 HP engine is visible (Merriman and Olson 2013b, 25-29).



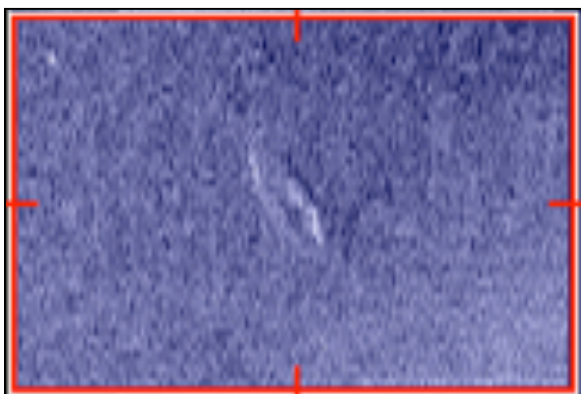
Sonar image of the Correct Craft Aqua Skier Deluxe Wreck (MHM).



The Correct Craft Aqua Skier Deluxe Wreck (Kelly Nehowig).

Small Aluminum Wreck

The unpowered Small Aluminum Wreck is 11.50 feet long with a 3.20-foot beam at her widest point, the gunwale has a flat sheer, and it is covered with a caprail of extruded aluminum. At the transom, a wide and flat one-piece stern casting overhangs the back of the wreck, large enough to accept a small outboard motor. Her damaged pointed bow is suggestive of a canoe and her transom stern narrows at the bottom creating a trapezoidal shape that is gently rounded where it meets the wreck's bottom. The wreck's bottom is flat with a defined, but not hard, chine. She has three bench seats, the one nearest the stern is exceptionally wide, and the port side oarlocks are extant while the starboard side examples are missing. At least one aluminum rivet is visible going through the hull on the port stern quarter. On both stern quarters the remains of a brand name are visible, but illegible; what appears to be an 'S', 'a', and what might be a 'u' are located on the port side, and a 'u' may be attached to the starboard side. These letters are not painted or transferred onto the hull but are applied, and appear to be metal or plastic (Merriman and Olson 2014b, 27-29).



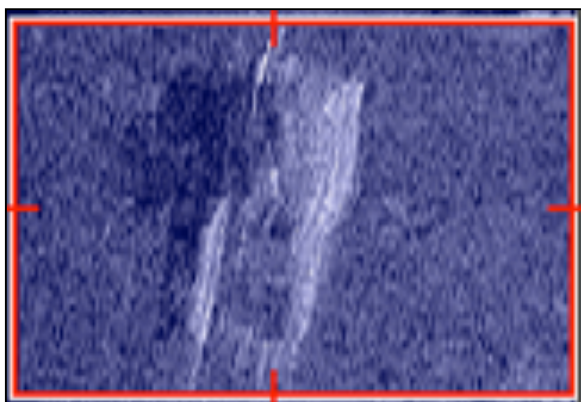
Above: Sonar image of the Small Aluminum Wreck (MHM).



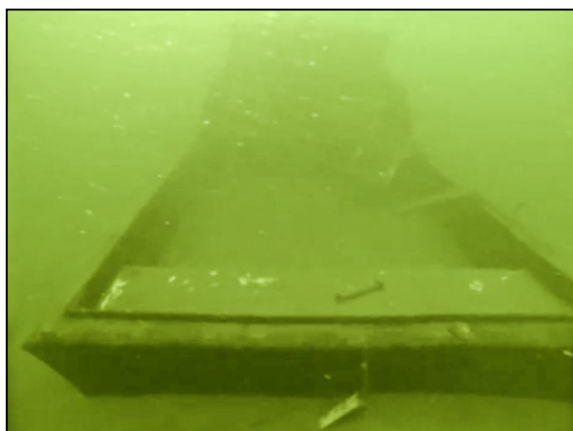
Right: The Small Aluminum Wreck (Kelly Nehowig).

1959 Owens Cruiser Deluxe Wreck

The Owens Cruiser Deluxe Wreck sank after a collision when her bow was cut off by another boat. The bow is broken off at the point where the foredeck met her cabin windshield and unfortunately, her registration number went with the bow debris. The windshield is intact but the bulkhead that comprised the interior forward wall of the vessel's dining area is gone. The wreck has a smooth hull (as opposed to the lapstrake option also offered for this Owens model) and a square transom. The vessel had a railing attached to the gunwale by small stanchions that were torn off during the wrecking process. Some stanchions have survived intact and there are remnants of some stanchion bases on the port and starboard gunwales amidships and on the transom. At least one stanchion dislodged and fell into the wreck, visible on top of a thin layer of silt inside the hull. The railing is not among the wreckage. The wreck's superstructure is largely intact including her port and starboard sliding and porthole-style windows, a roof with railings, spotlight, steering wheel, dashboard, and a ladder lies folded up on top of the roof. On both sides of the superstructure aft of the windows the "OWENS" brand name is clearly seen, made of raised letters. The site is 16.4 feet long by 8.2 feet wide and was originally 22 feet long and 7.8 feet in the beam. The wreck is constructed of wood and was powered by a gasoline inboard engine. The collision that sank the Owens Cruiser Deluxe Wreck occurred on Friday, July 31, 1970 around midnight. The Owens collided with an 18-foot runabout of unknown model, sinking both boats. A boater in a 21-foot Trojan cruiser heard cries for help in the water as he was passing nearby. The rescuer claimed, "I heard cries. I turned on the spotlight and all I could see was debris, and four people in the water amid the debris." Three passengers on the runabout, two women and one man in their 20s, were killed in the collision. One of their bodies was recovered within an hour of the collision and the others were located before Saturday evening. The wreck of the runabout has not been located (Handley Marine Division 1959; *Maverick* 1970; Merriman and Olson 2013b, 39-42, 2014b, 38-40; *Mound-West Tonka Minnetonka Sun* 1970).



Sonar image of the Owens Cruiser Deluxe Wreck (MHM).

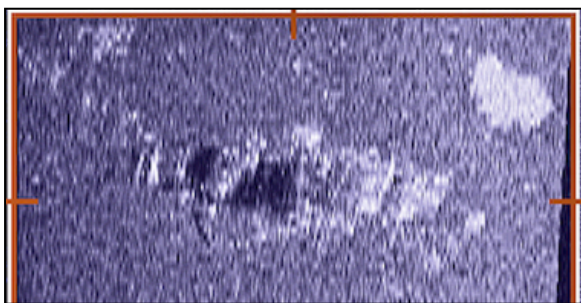


A stern view of the Owens Cruiser Deluxe Wreck. The bow was sheared off in a collision (Kelly Nehowig).

1959 Terra-Marina Amphibious Houseboat Wreck

The unique and rare Terra-Marina Amphibious Houseboat Wreck was powered by a 35 HP Evinrude 50th Anniversary Gold Jubilee Lark outboard gasoline motor and is 30 feet long with debris field of artifacts surrounding her. The boat was hit in the bow by a great force, her galley was destroyed, and there was substantial damage along her port side. The damaged aft section of her cabin still stands and the roof is intact. Terra-Marina hulls are steel vessels with wheels attached to an axle amidships and two vertical slots on the scow-shaped bow would take a large triangular towing bar that with a head that would fit onto a ball hitch. When launched, the wheels submerge with the bottom of the hull. When the boat needs to leave the water, the towbar would be attached and it would roll right out of the water. Advertisements for this vessel type describe them as "the houseboat with the built-in trailer". The boat was first registered in 1959 according to her number, MN 7782 AQ, and has a red 1974-1975-1976 year validation sticker on a fallen cabin wall (Merriman and Olson 2013a 39-42,

2013b, 54-55, 2014b, 40-41; *Minnetonka Record* 1965b; Terra-Marina Mfg. Co., Inc. 1959, 1960).



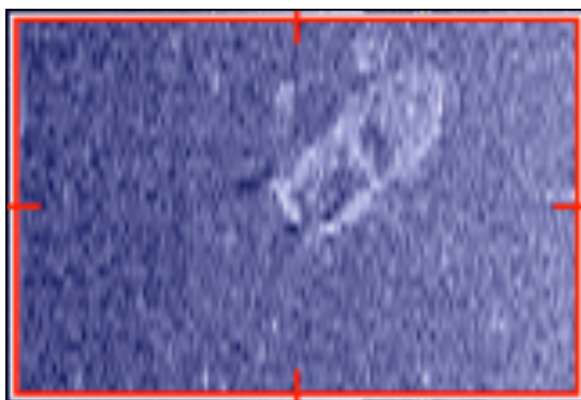
Above: Sonar image of the Terra-Marina Amphibious Houseboat Wreck (MHM).



Right: The port side of the Terra Marina Amphibious Houseboat Wreck (Kelly Nehowig).

1959-1960 Owens Twin Sport Wreck

The Owens Twin Sport Wreck is a 17.00 foot long fiberglass utility with the letters 'WENS' at the port stern. The wreck has no outboard motor attached, an indicator she may have been sunk on purpose, or if she sank in an accident, the motor was retrieved. The wreck has a ding on the port side bow, indicating a collision with a hard surface. She also has two holes in her foredeck that may be damage from anchors. One suggestion has been that she sank in a 1965 tornado, but this cannot be confirmed at this point (Merriman and Olson 2013a, 34-39).



Sonar image of the Owens Twin Sport Wreck (MHM).

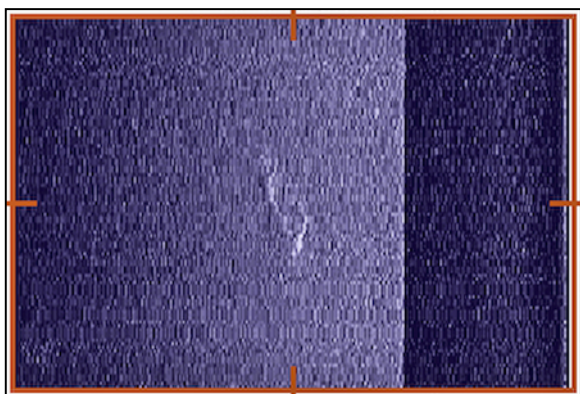


The starboard side aft quarter of the Owens Twin Sport Wreck (Mark Slick).

Wooden Motor Boat Wreck

The Wooden Motor Boat Wreck is 13.50 feet long and 4.5 feet in the beam. She is carvel-built with intact gunwales, with the exception of a large wedge taken out of the hull on the starboard side, and a partial surviving caprail. The wreck has a pointed bow with a towing ring and line attached to it, a square transom, narrow frames are extant throughout the hull, and a stringer runs longitudinally just above the turn of the bilge on both sides. At gunwale level on the starboard side there is a semi-triangular brace on the stern quarter, there is a vertical knee in the center of the transom for strength when the vessel carried a motor, and the stempost is intact. One metal oarlock is attached to the gunwale on the starboard side and the wreck is held together with slot-headed wood screws. Some white paint survives on both the inner and outer hull. The wreck's registration number is MN 6061 AS, indicating she was first registered in 1960, and she may have a Minnesota-shaped year validation sticker on her port side. The registration number is also the primary evidence that the boat carried a

motor since smaller human-powered row boats did not require licensing. This wreck does not appear in the DNR registration records indicating she sank prior to 1972 (John Nordby, personal communication, 6 July 2015; Merriman and Olson 2015g).



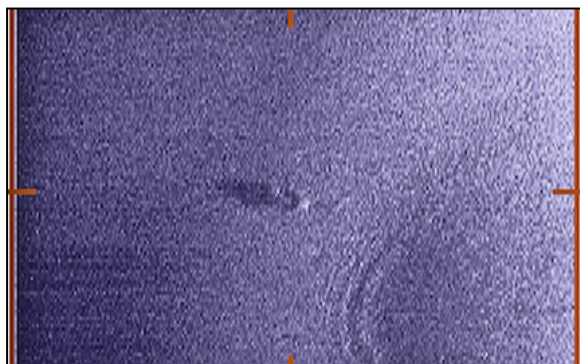
Sonar image of the Wooden Motor Boat Wreck (MHM).



The inner hull of the Wooden Motor Boat Wreck showing carvel construction, frames, a stringer, slot-headed wood screws, and white paint (Mark Slick).

1961 Blue Star Miamian Custom Wreck (21-HE-bn)

The Blue Star Miamian Custom Wreck is 15.80 feet long with a 76.80 inch beam, carries a 1960 40 HP Johnson Super Sea Horse outboard motor, and is constructed of fiberglass. Along the gunwale there appear to be attachment points for a bimini top. The gas tank is extant on her starboard aft quarter with a broken fuel line running from the motor onto the lake bottom. The wreck has a partial registration number on both her port and starboard sides, MN 59_5 BB; this letter sequence falls within the BA-BH range that were issued in 1962. The presence of a 1964-1965 validation sticker and the up position of her outboard suggests she was resting at a dock, broke free, and sank during the May 6, 1965 Deephaven Tornado (see Urban Centers below). During the wrecking process her seats and windshield were dislodged from the vessel and are not currently with the wreck (*Deephaven Argus* 1964; Merriman and Olson 2013b, 29-32, 2014b, 34-37).



Sonar image of the Blue Star Miamian Custom Wreck (MHM).

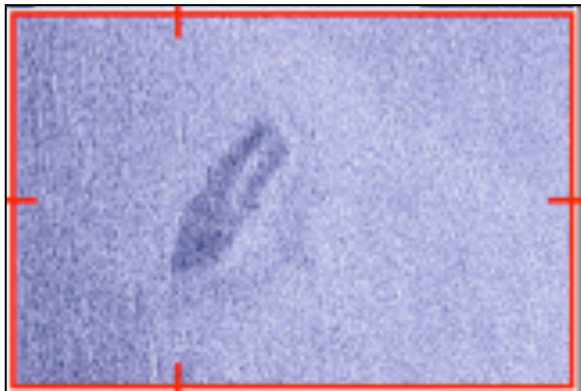


The starboard side of the Blue Star Miamian Custom Wreck (Kelly Nehowig).

1962 Span America Nomad Runabout Wreck

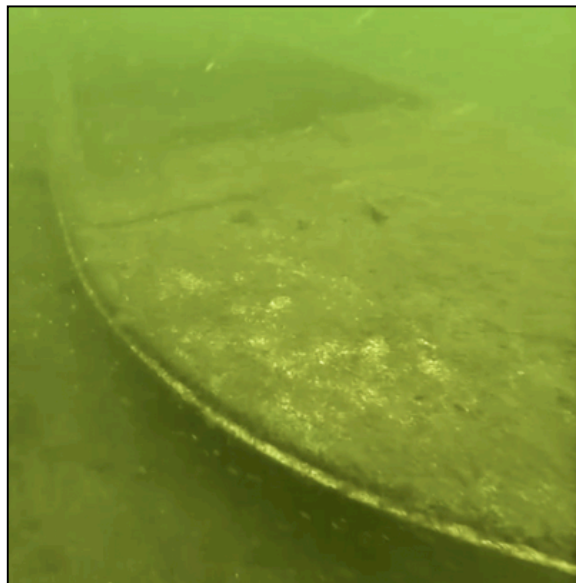
The Span America Nomad Runabout Wreck is 13.70 feet long with a 5.70 foot beam and is made of fiberglass. Her hull is blue and white, her front and back seats are missing, and her cleats, step pads, and mast light connector are extant. Her dashboard dials are missing and she carries no outboard motor or gas tank. The missing motor and gas tank suggests she was scuttled intentionally; the missing dials may have been removed prior to that action. The wreck's registration number is MN

0874 BG. The BG letter sequence was assigned to watercraft first registering in 1962 in Minnesota. DNR records record that this boat is a 1964 Span America, but this cannot be possible. Often boats were registered under the wrong year of manufacture upon its sale or when a new title was issued (titles were first required in 1972 and often erroneous information was recorded at that time). Other evidence recorded on the wreck that indicate she is a 1962 model is the logo design that survives on her starboard stern quarter. This particular design was used by Span America in 1961 and 1962 only and the 1962 Nomad model was exactly 13.70 feet long as opposed to a bit shorter in 1961. The 1962 Nomad model was offered as a utility or runabout; the wreck has two benches that would have held seats, indicating she is a runabout. Span America was operating out of Red Wing, MN in 1962, making the wreck of local construction (Merriman and Olson 2015g).



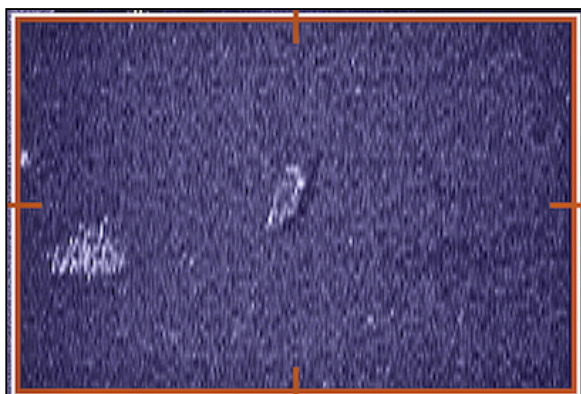
Above: Sonar image of the Span America Nomad Runabout Wreck (MHM).

Right: Looking toward the starboard bow of the Span American Nomad Runabout Wreck (Mark Slick).



1967 Sea King Aluminum Canoe Wreck

The 1967 Sea King Aluminum Canoe Wreck's registration number is MN 6372 CD and was last licensed in December 1977. Sea King canoes were sold through Montgomery Ward and her model number is 26179, she was constructed with flotation foam, and had a 780 pound carrying capacity. She is 17.00 feet long, 37.50 inches wide, has small enclosed fore and afterdecks, bow and stern eyes, three thwarts, and she has one seat fore and one aft. Her gunwale and decks are painted red. She carries a Danforth anchor, chain, and line at the bow and a line is attached to the stern eye; the aft thwart also has a line associated with it (Merriman and Olson 2013b, 45-48; Outdoors, Inc. 1972).



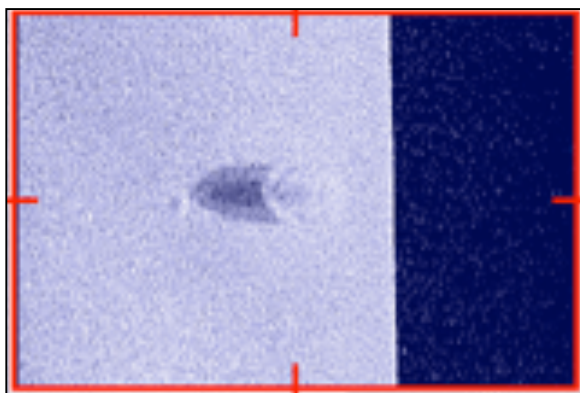
Sonar image of the Sea King Aluminum Canoe Wreck (MHM).



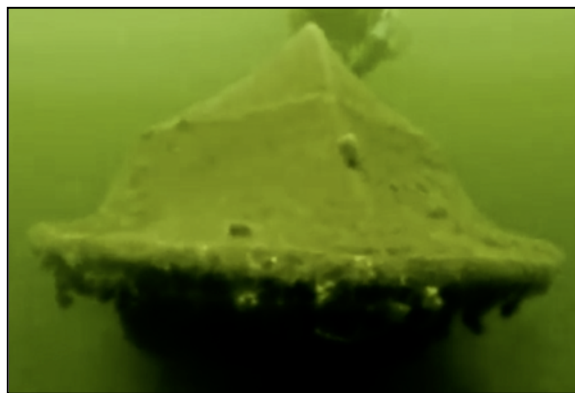
The bow of the Sea King Aluminum Canoe Wreck that has a gash in the hull (MHM).

Red Fiberglass Wreck

The Red Fiberglass Wreck is a capsized fiberglass boat with her stern imbedded in the lake bottom while her amidships section and bow are suspended in the water column. The wreck has an inboard/outboard Chrysler Marine Volvo Penta engine in an aft dog house and her lower unit and propeller extend from her square transom onto the lake bottom. The wreck's rear seats are resting in the silt along with the engine cover. Her registration number is MN 3752 EG, was registered through 1991, and sank in 1989. The boat's driver was located and it was learned that during a trip in choppy waters, the outdrive's boot (rubber transom seal) failed and water rushed into the boat at such a rate that the boat sank quickly (Merriman and Olson 2013b, 48-51, 2014b, 42-44).



Sonar image of the Red Fiberglass Wreck (MHM).



The underside of the bow of the Red Fiberglass Wreck that is suspended in the water column (Mark Slick).

1976 Lund Aluminum Fishing Boat Wreck

The Lund Aluminum Fishing Boat Wreck is a 16-foot Lund aluminum fishing boat with a 5.7-foot beam. The wreck's seats had been removed and concrete blocks placed inside, causing negative buoyancy resulting in her sinking. A series of small craft thefts from Tonka Bay occurred in July 1977 and one of these boats, reported missing on July 13, belonged to a Wayzata resident. The registration number on this stolen boat was MN 4617 DQ and that number matches the Lund Aluminum Fishing Boat Wreck. Her 1976 25 HP Johnson motor and other equipment were not sunk with the hull (*Lake Minnetonka Sun* 1977; *Maverick* 1977; Merriman and Olson 2013a, 45-47).



Sonar image of the Lund Aluminum Fishing Boat Wreck (MHM).

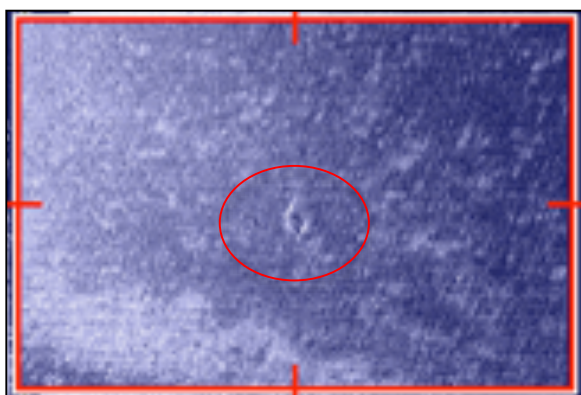


The view amidships and looking toward the bow of the Lund Aluminum Fishing Boat Wreck (Kelly Nehowig).

Aluminum Canoe Wreck

The Aluminum Canoe Wreck is 16 feet long and 2.9 feet in the beam amidships, has two seats fore and aft designed with carrying handles, three gunwale-level thwarts, and two pointed ends. The canoe's sheerline is nearly straight, an attribute more commonly found in the design of fiberglass

canoes. The 16-foot length is also anomalous since the majority of aluminum canoes measured either 15 or 17 feet, and the 16-foot long examples most often had square sterns. The wreck has a round green registration sticker along with a Minnesota-shaped validation sticker dated 1984 adhered to it on the bow's starboard side, suggesting she sank in the mid-1980s. She may have been scuttled as evidenced by the removal of her bow and stern decks and the flotation foam that would have been contained by a bulkhead attached to the small deck pieces. Amidships and toward the stern on the port side the canoe experienced thwart and hull damage, being somewhat crushed (Merriman and Olson 2014b, 31-32).



Above: Sonar image of the Aluminum Canoe Wreck (MHM).



Looking toward the bow of the Aluminum Canoe Wreck (Kelly Nehowig).

West Arm Pontoon Wreck

The West Arm Pontoon Wreck is capsized and lies on exceedingly soft silt and the visibility on the wreck site is zero. The bottom of the wreck is 22.6' feet long by 7.6' wide, has a square transom with some wooden elements (determined by touch), and has no outboard motor attached to the stern. Silt completely covers the wreck's deck and it was not possible to find a registration number. The pontoons are made of steel and the port side float is rusted through in places. In cross section the pontoons are angular, not rounded (Merriman and Olson 2013b, 33-34).

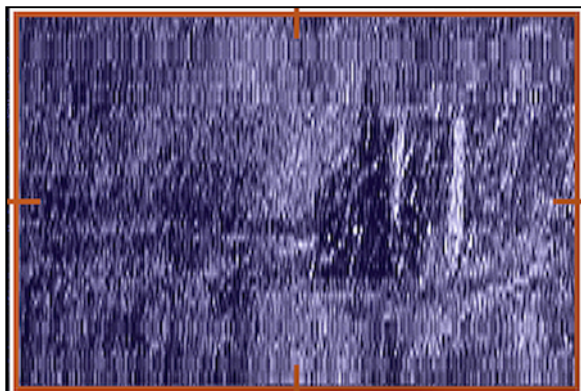


Sonar image of the West Arm Pontoon Wreck (MHM).

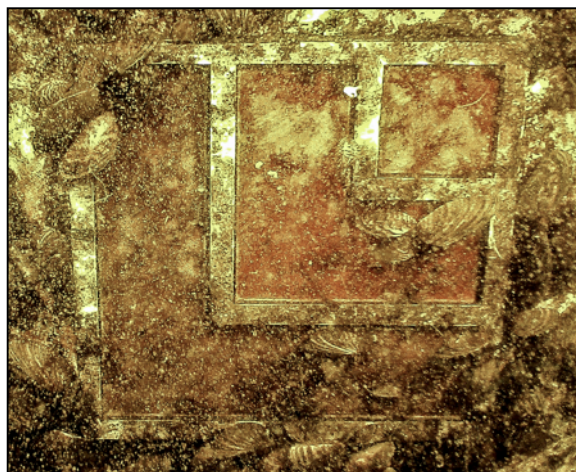
1980 Larson Delta Sport Cruiser 7000 Wreck

The Larson Delta Sport Cruiser 7000 Wreck is a fiberglass boat that was powered by an inboard/outboard engine, manufactured in Little Falls, MN. The wreck is 21.25 feet long with an 8.00 beam, has a bow cuddy, a stern swimming platform and ladder, and her stern quarters have a line of air scoops for hull venting. The wreck retains all of her fittings such as cleats, dash dials, windshield, railings, and a bimini top. Her seats are intact and there are cushions in the cuddy, along with all

other fittings. The wreck's registration number is MN 3559 EE, a designation attained in 1980, and she was last registered in 1982 (John Nordby, personal communication, 6 July 2015). There is no obvious damage to the wreck's hull that could explain her sinking, but damage may be evident under the silt or the outdrive's boot may have failed. The vessel may have been sunk intentionally, but most often the engine and other valuable items would have been stripped from the boat prior to the scuttling. The hull is white with red/burgundy accents and bimini top (Merriman and Olson 2015g).



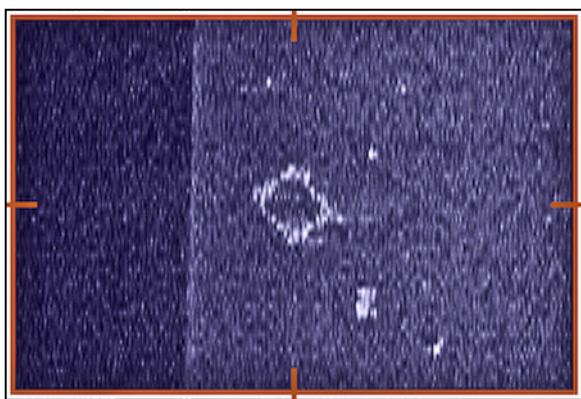
Sonar image of the Larson Delta Cruiser Wreck (MHM).



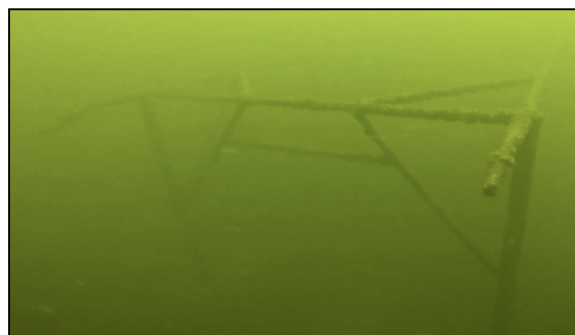
This Larson logo was first used in 1979 (Mark Slick).

Boat Canopy Frame Site

The Boat Canopy Frame is 14.10 feet by 8.00 feet, sits 5.00 feet off the lake bottom, and is constructed of steel. It may have detached from a nearby dock during high winds or it may have been intentionally scuttled. There is no boat lift mechanism evident, an attribute often associated with boat canopy frames, and the canopy is missing. The design of the frame is flat on the top, not peaked like other, larger frames (Merriman and Olson 2015g).



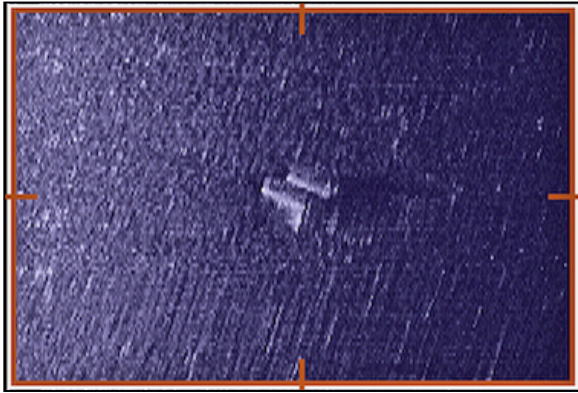
Sonar image of the Boat Canopy Frame (MHM).



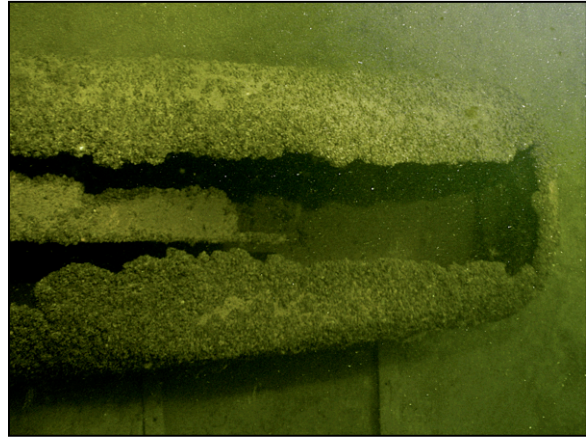
The Boat Canopy Frame Site (Mark Slick).

Pontoon Raft Site

The overturned Pontoon Raft measures 8 by 11 feet and is constructed of wood and metal. One of the pontoons is intact but the other has a gash running its length, indicating why it may have gone down (Merriman and Olson 2013a, 51).



Sonar image of the Pontoon Raft (MHM).



One of the Pontoon Raft's degraded pontoons (Mark Slick).

Urban Centers (1860-1965)

As mentioned above, Excelsior was founded in 1853 and Wayzata in 1854. During the late 1850s and 1860s, Lower and Upper Lake Minnetonka remained largely forested or was cleared farmland. Transportation between lake settlements primarily depended on watercraft until the late 1880s. The Upper Lake is connected to the Lower Lake's Lafayette Bay by the Narrows Channel and the connection between Crystal and Smith Bays. Originally the Narrows was called 'Hull's Narrows', a marshy shallow 40-acre area of wild rice that served as an adequate passage for small boats and shallow-draft steamers. In 1877 the Narrows was described as a "narrow channel through a marsh forming the connecting link between Upper and Lower Lakes. It was, in early times, a passage for rowboats, but the advent of steamers required its dredging and widening, and it is now a good sized canal". This 'good sized canal' was not adequate for long, however, and the 'New Narrows' channel was dug just northwest of Hull's Narrows in 1884. By 1888 a road was constructed (current County Road 19) between the Upper and Lower Lakes and as a consequence, a ferry boat to bridge the gap between Minnetonka Lake Park (now Tonka Bay) and what is now Navarre on the way to Minnetonka Beach and Spring Park was needed. The ferry, a wooden flat boat, was constructed by Moses Bickford at the Excelsior Commons and measured 25 feet long with an 18-foot beam (*Lake Minnetonka Tourist* 1876; McGinnis 2010, 72; *Northwestern Tourist* 1888; *Tourist and Sportsman* 1877).



The Hull house at Hull's Narrows in the late 1850s (Edwin Whitefield, MNHS AV1995.141.19).

By the mid-1870s, Upper Lake Minnetonka was being touted as a natural wonder, with an abundance of wildlife, islands, and a number of boarding houses from which to enjoy fishing and boating. It was described as being “nowise inferior to the lower part, but, on the contrary, in natural beauty and variety of wild scenery, much superior”. In the West Upper Lake, Crane Island was described as being “held sacred by the residents in its vicinity, from the fact of its being the summer abode of a colony of blue heron...[and] there is a penalty attached to shooting these Upper Lake pets”. Eagle Island, likewise, was named for a pair of eagles spotted there early on, a rare site on Lake Minnetonka. Wawatasso Island, once called Dunlap’s Island and Fire-fly Island - or ‘Little Firefly’ in Dakota. The wild nature and inaccessibility of the Upper Lake prompted local boatman Charles May to put together the first fleet of steamers on Lake Minnetonka, beginning in 1874 near Excelsior. May owned the propeller *May Queen* designed by Captain N. H. Harrison and mastered by Captain William Rockwell, who later owned *May Queen* and constructed a hotel on Shady Island in 1879. May’s maritime commercial interests also included the sidewheeler *Rambler* in 1874 and the propellers *Kate/Katie May/Saucy Kate* in 1876, *City of Minneapolis* in 1880, and *Mary/Hiawatha/ Scandinavian/Star* in 1882 (*Lake Minnetonka Tourist* 1876; McGinnis 2010; *Tourist and Sportsman* 1877, 1879).

By 1875, Mound City was established on the Upper Lake’s Cooks Bay and was described as “a new village, with a store, post office, blacksmith shop and hotel...and a number of residences have also been built there. The purchase of cord wood and stave bolts is the principal feature of trade...[and] a saw mill was put in operation there during the past winter.” The aforementioned hotel was the Lake View House, established by Mathias Cook as ‘Cook’s House’ in 1854, being enlarged and renamed in 1867.

Chapman House opened in July 1876 and was described as a “new and commodious hotel...to rival in size and elegance any house on the lake”. These boarding houses boasted large grounds of shade trees, croquet, fleets of rowboats for fishing and sailboats for fun, and ice houses for the ‘daily catch’. Most importantly, Mound City had daily steamboat visits from Excelsior and Wayzata on the Lower Lake so patrons could enjoy several hours of lake excursions. For longer-term visitors, local boat-builders R. R. Cummings and E. K. Weeks constructed fleets of rowboats and sailboats for Mound City's hotels and boarding houses (*Lake Minnetonka Tourist* 1876; Meyer 1997, 61-62; *Tourist and Sportsman* 1877).



Tourists enjoying Lake Minnetonka at Chapman House in Mound (MNHS GV3.61p7, digitized by MHM).

In 1880 Spring Park was established on part of the land claimed by John Carman and was the location of the ‘Bon Ami Club’, founded by a group of St. Paulites. The club accommodated camping, croquet, sailing, rowing, picnics, was an excursion stop for steamboats, and supported several summer cottages. In 1881, the Lake Minnetonka Navigation Company (partly owned by railroad operator James J. Hill) operated four steamboats, the sternwheeler *Hattie May* and the propellers *City of Minneapolis*, *Nautilus*, and *Lotus*, to accommodate summer resort owners and tourists, and lake residents. The large new sidewheeler *City of St. Louis* and the smaller propellers *Saucy Kate* and *Mercury* operated on both sections of the lake as well. In 1882, the largest steamer to work on Lake Minnetonka – the sidewheeler *Belle of Minnetonka* – was launched and provided service on the Upper and Lower Lakes as well. The 1883 fleet was comprised of the *Belle of Minnetonka*, *City of St. Louis*, *Hattie May*, *Lotus*, *Saucy Kate*, and *Star* (the former *Mary*). A detailed 1883 schedule for these steamboats indicated the *Belle of Minnetonka*, *Saucy Kate*, *Lotus*, and *City of St. Louis* regularly traveled between the Upper and Lower Lakes on a timetable. The number of steamboat excursionists that year totaled more than 90,000 people between 1 June and 1 October

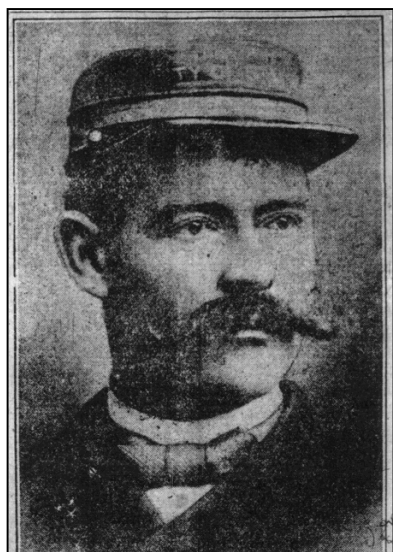
for both the Upper and Lower Lakes. Also in 1883, a cottage industry also sprang up in Mound City with the 'Lake Minnetonka Supply Boat', owned and operated by T. B. Carman using the tug '76 (formerly owned by the Northwestern Fuel Company). The boat made "regular trips around the lake to supply groceries, vegetables, canned goods, and about everything wished for, to camps, cottages and hotels". Mr. Carman made it easy for tourists and weekenders to use his services because orders for the supply boat could be left in Wayzata, Mound City, or by flagging down the boat herself. A. Thompson ran a similar supply boat service out of Excelsior. In the Upper Lake's West Arm, Deering Island was the home base for the steamer *Florence M. Dearing*, owned by Charles W. Dearing in 1890. George West and his son Ebenezer put together a small fleet of Lake Minnetonka craft and by 1891 they owned the propellers *Twin City*, *West Point*, and *Why Not?* Another small fleet owner was Captain James L. Hopkins, who operated the *Alert*, *Hawkeye/Reindeer*, *Juno*, and *Nina* beginning in 1892 (McGinnis 2010; Mowry 1884, 7; *Northwestern Tourist* 1883a-b, 1890; *Tourist and Sportsman* 1881).



Lake Minnetonka steam launches moored in Spring Park (MNHS HE5.11Tr9, digitized by MHM).

Of particular note for the maritime history and nautical archaeology of Lake Minnetonka, the career of Captain John R. Johnson stands out as exemplary for the development of Post-Contact Period waterborne commerce and maritime infrastructure that facilitated the establishment of urban centers around the lake. Johnson's first job on Lake Minnetonka boat was as first mate of the *City of St. Louis*, later becoming her captain. Johnson purchased the six watercraft owned by the Lake Minnetonka Navigation Company, *Belle of Minnetonka*, the *City of St. Louis*, *Hattie May*, *Lotus*, *Minneapolis*, and *Saucy Kate* in September 1896. Captain Johnson also acquired a dock at Solberg Point and two others across the bay in Excelsior, thus establishing the Lake Minnetonka Transportation Company. Over the years Johnson owned many boats that he moored at his wharf on Solberg Point opposite Excelsior. Among them were: *Alert*, *Kate/Katie May/Saucy Kate*, *Hattie May/Tonka*, '76/*Katie Lillagar/Dagmar*, *Mayflower*, *Me Too*, *Rambler*, *Puritan*, *Vergie/Pilgrim*, the old Narrows Ferry, barge *Priscilla* (fashioned from a section of the *City of St. Louis*), *Plymouth*, *Cala Sayam*, *Buttinsky*, tug *Priscilla*,

Napoleon, and *Miles Standish*. In 1905 Captain Johnson took a contract from the Twin City Rapid Transit Company's (TCRT) to construct three ferries for use between Excelsior and the under-construction Big Island Amusement Park, the sidewheel steamers *Minneapolis*, *Minnetonka*, and *St. Paul*. In 1906 Johnson sold *Mayflower*, *Plymouth*, and *Puritan* to the TCRT and removed himself from the transportation business on Lake Minnetonka, concentrating on the operation of his Lake Minnetonka Dredging Company (LMDC). Johnson used the dredge *Napoleon* and tug *Priscilla* for the LMDC, adding numerous barges to his fleet during the first quarter of the 20th Century, as late as 1926. Interestingly, the Wayzata and Excelsior Steamboat Line (WESL) was formed as competition for Johnson's LMTCO, a fleet comprised of *George/Excelsior*, *Victor*, *Fannie L.*, *Helen*, *Ypsilanti*, *Jaunita*, *Milliquata*, and *Comet*. In 1906 the WESL became the White Line Transportation Company, then the only competition for the TCRT and its new Streetcar Boats. In late 1906 the TCRT monopoly of the largest passenger steamers on the lake was complete with their acquisition of the *George/Excelsior* (*Excelsior Cottager* 1896; McGinnis 2010; *Minneapolis Journal* 1921; *Minneapolis Sunday Tribune* 1931; *Minnetonka Record* 1904, 1925d, 1926a-b, 1927).



Above: A memorial to Captain Johnson in Excelsior (MHM).

Left: Captain John R. Johnson (*Minneapolis Sunday Tribune* 1931).

Twin City Rapid Transit Company

The coming of the TCRT streetcar line to Excelsior and the construction of six Streetcar Boats (also known as Express Boats) as public transportation in 1906 (*Como*, *Harriet*, *Hopkins*, *Minnehaha*, *Stillwater*, *White Bear*), combined with TCRT's acquisition of the vessels mentioned above from the LMTCO and WESL, nearly eliminated any competition in waterborne transportation on the lake. The TCRT's expansion of the streetcar line to Excelsior and the Streetcar Boat service that connected the south Lower Lake with the entirety of Lake Minnetonka provided quick and efficient transportation that facilitated daily commutes to the Twin Cities, Stillwater, and White Bear. By early May 1906 the TCRT had not completed the required 16 docks in order for their Streetcar Boats to operate fully, and only the *Minnehaha* and *Stillwater* had arrived from their Minneapolis shops ready for service. Therefore, a few independent boat operators persisted with their service in 1906, including the *White Flyer* (a name

briefly held by *George/Excelsior* before she was sold to the TCRT), *Wayzata*, *Acte*, *Vergie/West Point/Pilgrim* (captained by Al Bickford), *Hebe* (captained S. T. Johnson), *Detroit* (captained by A. J. Cornell), and *Victor*, owned and operated by Captain George Hopkins. Captain Hopkins had worked with Captain John R. Johnson throughout the years, starting out as an engineer on the *City of St. Louis* when Johnson was First Mate. He also captained *Saucy Kate* (1899) and *Plymouth* for Johnson, and purchased the *Victor* in 1906. During the Streetcar Boat years, even with the inclusion of a seventh Streetcar Boat (*Excelsior*) in 1915, Captain Hopkins operated the *Victor* until late 1925. In 1924, the TCRT began limiting their Streetcar Boat service by eliminating some stops around the lake and by 1925, *Como*, *Minnehaha*, *White Bear*, and the TCRT tug *Hercules* were decommissioned. The reason for this decline in scheduled boat service was the increased construction of roads around the lake and the increased ownership of cars. According to TCRT construction records, these four vessels were dismantled (machinery, seats, superstructure removed) in 1926 and their hulls sunk in Lake Minnetonka north of Big Island. By late June 1925, the Transit Supply Company, a subsidiary of the TCRT, placed the remaining four Streetcar Boats up for sale – with one taker. Captain Hopkins purchased the *Hopkins* for \$1,500, changed her trademark yellow hull to white, and renamed her *Minnetonka*. She operated as an excursion boat on Lake Minnetonka until 1949, when she was sunk near her sisters north of Big Island. No interest in the *Excelsior*, *Harriet*, and *Stillwater* was expressed and they were completely dismantled at the TCRT's shops in early 1928, their hulls never seeing the bottom of the lake (McGinnis 2010, 70, 253; Merriman and Olson 2015a, d-f; *Minneapolis Journal*, 1899, 1925; *Minnetonka Record* 1906a; Construction Ledgers: Expenses, TCRT Records 1926, 1928).



Scheduled routes of the TCRT Streetcar Boats and Big Island Steamers in 1910 (MNHS G4144.T89P331910.T85, digitized by MHM).

The work boats of Lake Minnetonka - the tugs, barges, piledrivers, dredges, Streetcar Boats, ferries - allowed the area to become an extension of the Twin Cities through shoreline development, improvements, and an efficient and inexpensive transportation system. Further, the personal recreational watercraft wrecks listed above are also part of the economic and cultural development of the Lake Minnetonka area's urban centers. As numerous towns were established and nearly every parcel of land was purchased by non-public entities, creating an area with a large population density as vacation cabins and cottages were replaced by houses that were occupied year-around.

Associated Property Types

In the late 19th Century and throughout the 20th Century, numerous vessels were constructed to maintain and improve the lake's shoreline, and for the purpose of public transportation to different points around Upper and Lower Lake Minnetonka. Many of these watercraft have been found on the lake bottom. Further, other types of vehicles and constructed structural components that served as lakeshore infrastructure have fallen through ice, abandoned on the ice after breakdowns, and been blown into the lake.

The wrecks are classified by their engine type and means of propulsion:

1906 *Minneapolis* Wreck (21-HE-403)

The sidewheel steamer *Minneapolis* and her sisters *Minnetonka* and *St. Paul* were constructed in 1906 by Captain John R. Johnson at Solberg Point for the Twin City Rapid Transit Company to act as a ferry for their customers traveling from Excelsior to the Big Island Amusement Park. The ferries were 109 feet long with a 35-foot beam, were double-ended with rudders at both bow and stern, and were propelled by sidewheels. After one season of disappointing performance, the ferries were lengthened to 142 feet long with a 39-foot beam, a design that was better suited to handling her heavy mechanical equipment. With the closing of the amusement park, *Minneapolis* was redundant and it was planned for her to be set ablaze in the hopes to make some last profit from her. She was burned on 8 August 1912, witnessed by a large crowd, with people traveling from the Twin Cities to watch the spectacle (Construction Records: Ledgers, TCRT Records 1905-1907; Merriman and Olson 2012a, 30-31; *Minneapolis Morning Tribune* 1912; *Minnetonka Record* 1906b, 1912a-b; Olson 1976, 308).



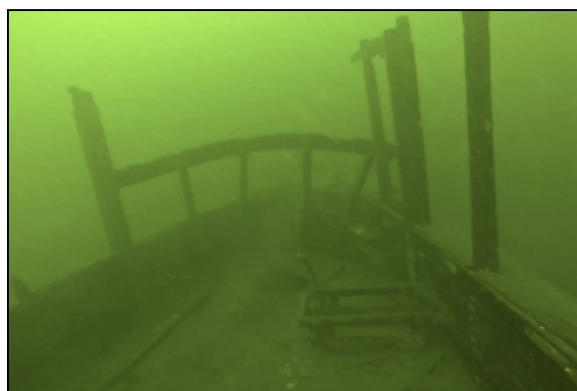
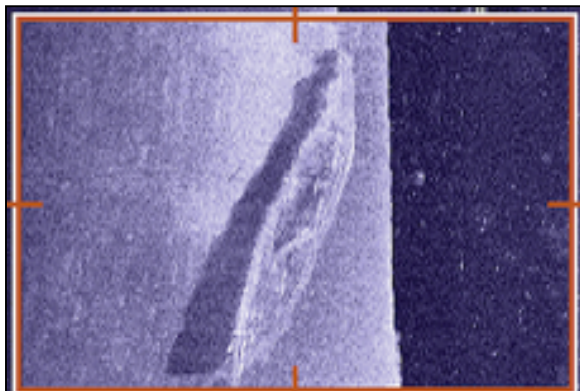
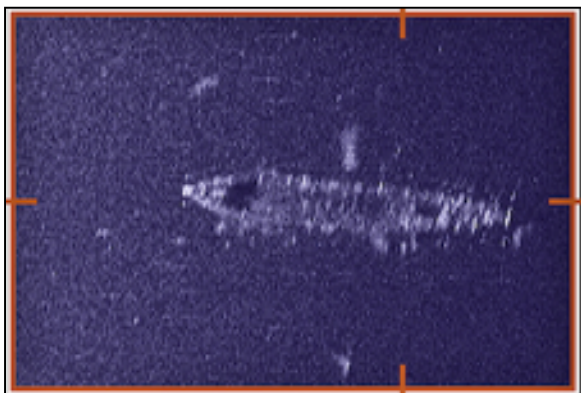
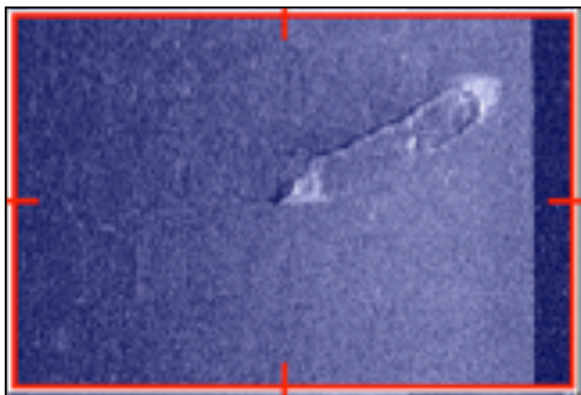
Above: Sonar image of the *Minneapolis* Wreck (MHM).



Right: Sidewheeler *Minneapolis* (MNHS HE5.13p37).

1906 *White Bear* Wreck (21-HE-281)**1906 *Como* Wreck (21-HE-397)****1906 *Hopkins/Minnetonka* Wreck (21-HE-396)**

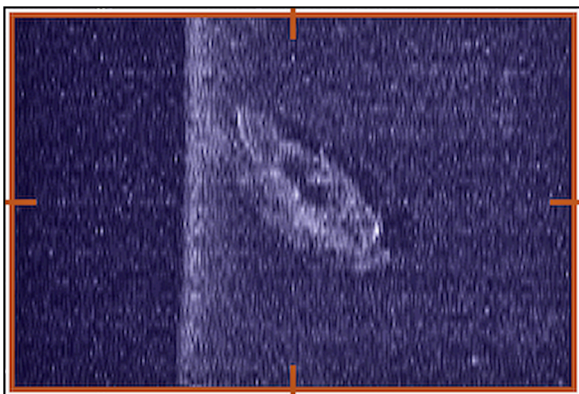
The six steam propeller Streetcar Boats were designed by Royal C. Moore and constructed under his supervision at the TCRT shops in Minneapolis. They were 70 feet long, 14.83 in the beam, and had a 5 foot draft. Their hulls were constructed of cypress with white oak frames and the fleet was painted canary yellow like the trolley cars. The boats carried 150 horse power triple expansion steam engines, 250 psi water tube boilers, and their propulsion depended on a 46 inch diameter propeller. *White Bear* and *Como* were sunk in 1926 (along with sister *Minnehaha* that was raised in 1980) after being partially dismantled. Prior to their scuttling, the superstructures of the boats were removed and their engines, boilers, and seats recycled. *Hopkins* was purchased by Captain George Hopkins and operated on the lake as *Minnetonka* until her sinking in 1949 (Construction Records: Ledgers, TCRT Records 1926, 1928; Merriman and Olson 2012a, 32-27, 2015a, f; Olson 1976, 308).



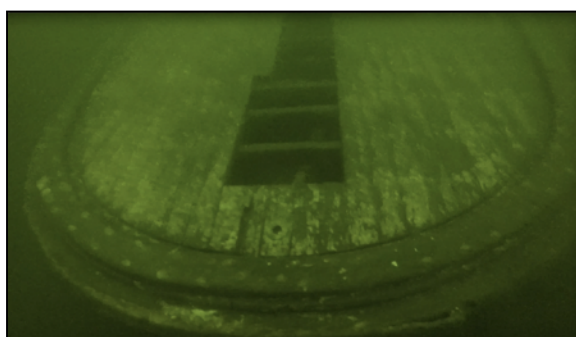
Left: Sonar images of the *White Bear* Wreck, *Como* Wreck and the *Hopkins/Minnetonka* Wreck (MHM).
 Right: *White Bear* (post card), *Como*'s bow, and the *Hopkins/Minnetonka* Wreck (Kelly Nehowig).

1906 Tug *Priscilla* Wreck (21-HE-404)

The propeller steam tug *Priscilla* Wreck is 50 feet long and 15 feet wide. *Priscilla* was constructed in 1906 and owned by Captain John R. Johnson. For Johnson's Minnetonka Dredging Company, *Priscilla* towed the dredge *Napoleon* and other barges (see the Hopper Barge Wrecks Site below) for jobs around the lake. By the mid-1920s, *Priscilla* was converted to internal combustion and continued in service for the dredging company until the early 1950s. *Priscilla* has sturdy bollard placement both fore and aft, a robust gunwale, and twin rubrails. A Danforth anchor is wedged into the wreck's rubrail, caught there from a surface boat (Merriman and Olson 2012a, 42-43, 2013a, 11-13, 2015i).



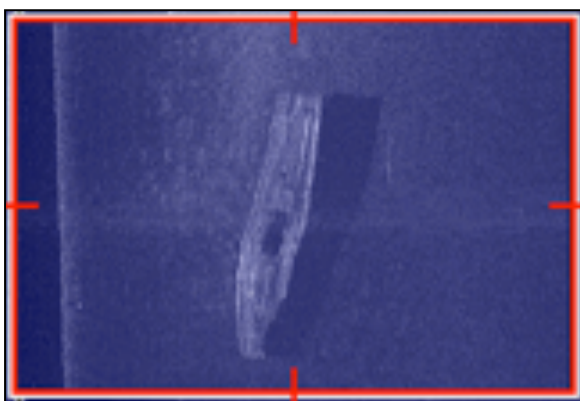
Sonar image of the *Priscilla* Wreck (MHM).



The stern of the *Priscilla* Wreck (Mark Slick).

1917 Tug *Hercules* Wreck (21-HE-398)

The steam tugboat *Hercules* was constructed between December 1916 and May 1917 by the Twin City Rapid Transit Company at their Excelsior shop. The tug measured 50 feet long, 12.5 feet in the beam, and she was launched in early June 1917 for use in TCRT dock and boat maintenance. *Hercules* was sunk in 1926 with the *Como*, *Minnehaha*, and *White Bear*. Her superstructure and machinery were removed from her hull prior to her scuttling (Construction Records: Ledgers, TCRT Records 1926; Merriman and Olson 2012a, 37-38, 2015e; Olson 1976, 308).



Sonar image of the tug *Hercules* Wreck (MHM).



The starboard side forward quarter of the *Hercules* Wreck (Kelly Nehowig).

1925-1926 Hopper Barge Wrecks Site (21-HE-441)

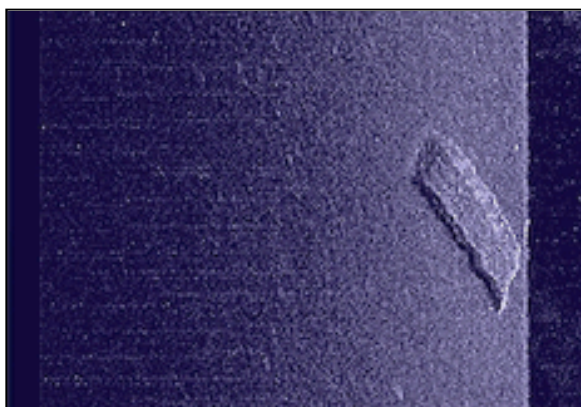
Two 40 foot-long Hopper Barge Wrecks, one upright and one capsized, that comprise site 21-HE-441 are sisters of the same design and size: 44.6 feet long, 16.5 feet in the beam, with a 4.75 foot depth of hold. The decks and bottoms of both wrecks are planked athwartships and the ends of the vessels are raked with watertight compartments. Large metal cleats survive on the upright barge, two on one

end and one amidships. An amidships deck coaming borders four open deck compartments that are separated by bulkheads topped with metal beams. Each of the four compartments has an outer hull flap that is hinged at the top, below the gunwale and coaming. Two windlasses are attached to the deck next to the compartments, with chains wound around them, that were used to open and close the side flaps. The common form of hinged flaps used in hopper barge construction beginning in the late 1800s – to dispose of dredge spoil out of the hull – were located on the bottom of the vessel, not the side. This side flap design is unique to these hopper barges and represents an innovation developed by Captain John R. Johnson, their designer and builder. The barges were constructed by Captain Johnson during the winter of 1925-1926 and were used in Excelsior Bay and other parts of Lake Minnetonka where the dredging of the lake bottom created or deepened channels, removed underwater obstructions or deepened the lake in a given area (Merriman and Olson 2014b, 8-14; *Minnetonka Record* 1925a-c).



Above: One end quarter with a deck cleat of Hopper Barge Wreck 1 (Ed Nelson).

Left: Sonar image of Hopper Barge Wreck 1 (MHM).



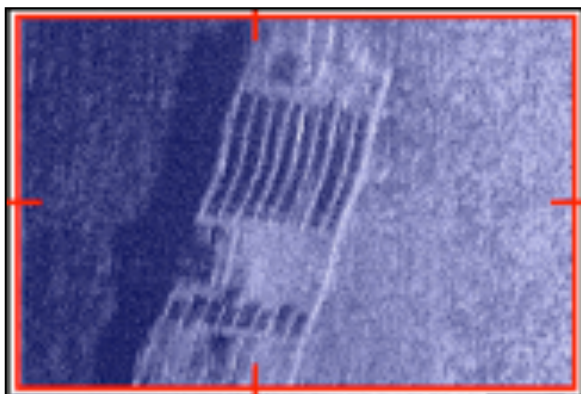
Sonar image of Hopper Barge Wreck 2 (MHM).



Looking toward one end of Hopper Barge Wreck 2. A side flap is visible at the bottom of the image (Kelly Nehowig).

St. Albans Bay Wreck (21-HE-400)

The St. Albans Bay Wreck is a wooden piledriver/dredge of substantial construction and size. She is 70 feet long, 26 feet in the beam, and her depth of hold is 5 feet. There is an extendable leg, known as a spud, located at the stern of the wreck. Captain John R. Johnson's last known dredge was built over the winter of 1925-1926 and was described as "26 feet wide, exclusive of spuds, and 70 feet in length. It will have a freeboard of five feet", although the newspaper misused the term 'freeboard' (Merriman and Olson, 2012a, 39-42, 2013a, 14-16, 2015j; *Minnetonka Record* 1925d).



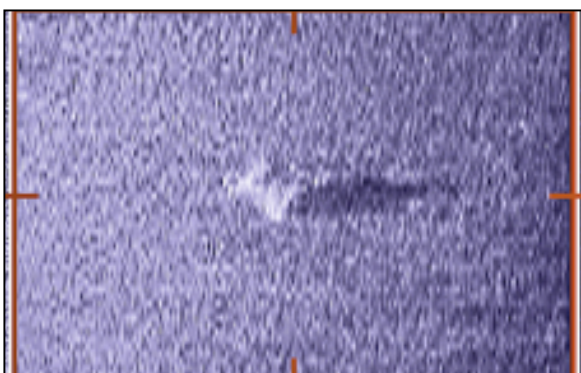
Sonar image of the St. Albans Bay Wreck (MHM).



A section of the St. Albans Bay Wreck where the inner hull is accessible (Kelly Nehowig).

1919-1925 Ford Model T Doodlebug Site (21-HE-bm)

A doodlebug is a car or truck converted into a tractor and in this case, from a Ford Model T car or truck. It has a worm gear axle that would have been incorporated into a Model T truck, but the body of the tractor is shorter than either a car or truck. The site measures 6.00 feet between the front and rear axles and during the conversion, the worm gear axle could have been added to a car frame. On either side of the tractor a support beam extends from the front of the vehicle to the rear axle. It has two dual rear tires with chains on the inner set, indicating it required traction on ice, and the left rear outer tire is missing. The doodlebug may have had a belt attached to the rim of the left rear wheel that was probably connected to a circular saw that was used to cut wood. Three of the rubber tires have survived and the spokes of the wheel rims are wood. The rubber tire of the left front wheel is missing and the wheel is sitting at an angle, suggesting a broken tie rod resulting in an inability to effectively steer the vehicle. The broken tie rod may have caused the tractor's owner to abandon it on the ice. Diagnostic attributes of the doodlebug are the cursive Ford logo embossed on the grease caps for the wheel bearings. The long steering column places the driver's seat above the rear axle. The steering wheel is present but has been knocked off the steering column and has slid down it, landing near the battery and on top of the transmission. The tractor's seat is no longer extant. It has a four-cylinder engine with four spark plugs and four ignition coils mounted next to the cylinder head on the left side. A parking brake lever is found on the ride side of the transmission at the rear end of the engine and the radiator, normally mounted in an upright position in front of the engine, has fallen forward and lies on the lake bottom. The carburetor, exhaust manifold, and starter motor are present on the right side of the engine, while a six-volt battery for the starter motor is behind the engine next to the transmission. Starter motors were introduced into the Model T in 1919. Further, wooden spoke wheels were replaced by steel examples in 1926; therefore the original vehicle was made between 1919-1925 (Cubel and Cubel 2013; Ford Motor Company 2014; Merriman and Olson 2014b, 24-26).



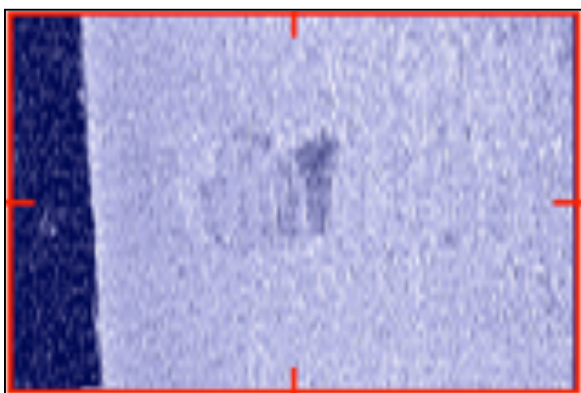
Sonar image of the Ford Model T Doodlebug (MHM),



Wooden spoke wheel of the Doodlebug (Mark Slick).

1936 Plymouth Sedan Site

A 1936 Plymouth 4 Door Sedan landed on the bottom of Lake Minnetonka upside down. The body of the car is almost completely crushed, with the exception of the passenger side quarter window in the C pillar, rear 'suicide' (rear hinge) door, and front door, both complete with windows. The underside of the car is intact and the frame, axles, leaf springs, running boards, oil pan, exhaust system with muffler, battery box, gas tank, drive shaft, and rear wheel drive axle are clearly visible. The front and rear bumpers, as well as the right rear fender, are still attached to the car's frame. A small right side round red taillight survives and is attached to a spacer that has fallen away from the right rear fender. The right front fender is detached and lying on the lake bottom near its original position with a headlight attached to a spacer that is located between the fender and the hood of the car. The radiator is in place and the vehicle's tall and narrow grille is in front of it. The grille's center section has fallen away and rests on the lake bottom and the entire grille has loosened from its original place behind the front bumper. The Plymouth has 4 intact, but compressed, white wall tires (Merriman and Olson 2014b, 32-34).



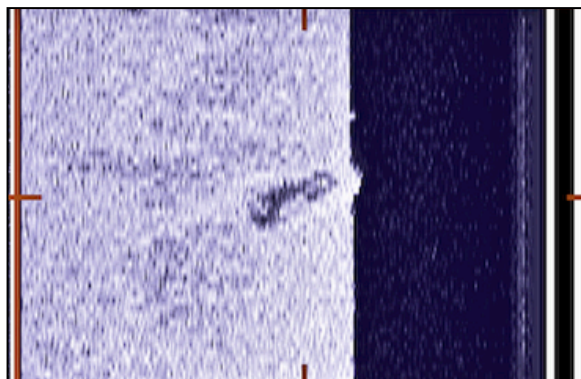
Sonar image of the 1936 Plymouth Sedan Site (MHM).



The 1936 Plymouth Sedan (Kelly Nehowig).

1955 Mercury Monterey 4 Door Sedan Site

The 1955 Mercury Monterey 4 Door Sedan is 17.00 feet long and 5.00 feet wide and its sinking was the result of a 'Dunk the Clunk' contest. Beginning in 1957, the Wayzata Lions Club sponsored a fundraiser to benefit Camp Courage and other programs. A car was placed on the lake ice in Wayzata Bay in March and "guesses" were taken as to the date and time the 'clunk' would go down. Several hundred up to 1,150 people (in 1963) guessed the dunking date yearly, and it was reported consistently that "clunk watchers" eating at Hart's Cafe busily made yearly predictions (Merriman and Olson 2013a, 47-51).



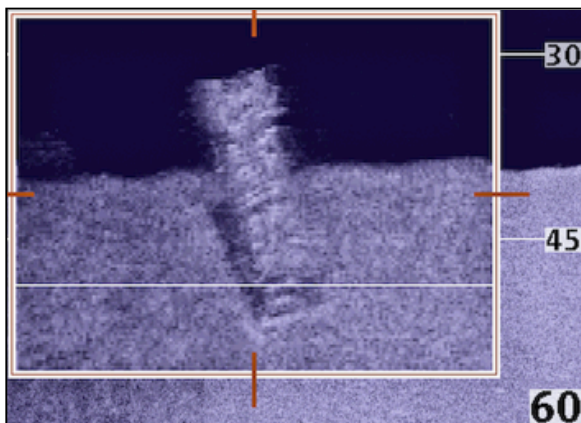
Sonar image of the 1955 Mercury Monterey 4 Door Sedan (MHM).



The 1955 Mercury Monterey 4 Door Sedan (Kelly Nehowig).

1974 White Chevrolet Caprice Classic Two Door Coupe Site

The 1974 White Chevrolet Caprice Classic Two Door Coupe is overturned with its grill, hood, windshield, and passenger compartment roof resting on the lake bottom and its trunk suspended in the water column. The site is 18 feet long by 6 feet wide. The car has a thick pillar in the 'B' section of the car, rear quarter 'opera' windows, low placement and discontinuous side trim molding, fleur-de-lis emblems on its pillars, and taillights above the bumper - all diagnostic attributes of the 1974 model. The car also has a 'Caprice Chevrolet' emblem on its trunk. The tires have compressed because of the water pressure and the vehicle shows some signs of rust. The rear license plate is readable, 249 CTJ, and according to the Hennepin County Sheriffs Water Patrol the number has been re-assigned to another vehicle. The latest year validation sticker dates to May 1989 (Merriman and Olson 2013b, 50-52).



Sonar image of the 1974 Chevrolet Caprice Classic Coupe (MHM).



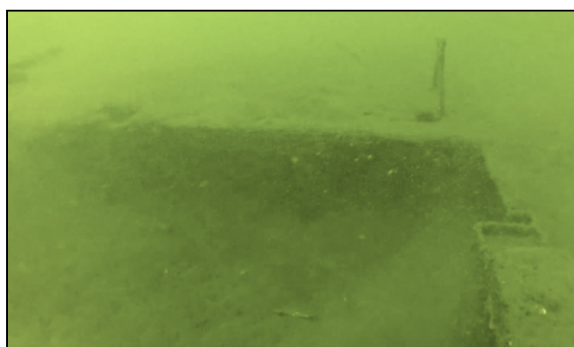
A fleur-de-lis 'Caprice' emblem on the car's pillar near the opera window (Mark Slick).

1981-1984 Echo Bay Metal Barge Wreck

The Echo Bay Metal Barge Wreck is 28 feet long, 6.65 feet in the beam, is constructed of welded metal with wood fittings, and there are metal cables attached both fore and aft, with the forward cable snapped. She is significantly exposed off the bottom of the lake and has a scow-style raking bow and transom stern. The barge was built and used by the Minnetonka Portable Dredging Company of Shorewood and sank between 1981 and 1985. The barge was being towed toward Lafayette Bay in high wind and waves. The barge was swamped, the towing cables snapped, and she went to the bottom of the lake (Merriman and Olson 2013a, 43-45).



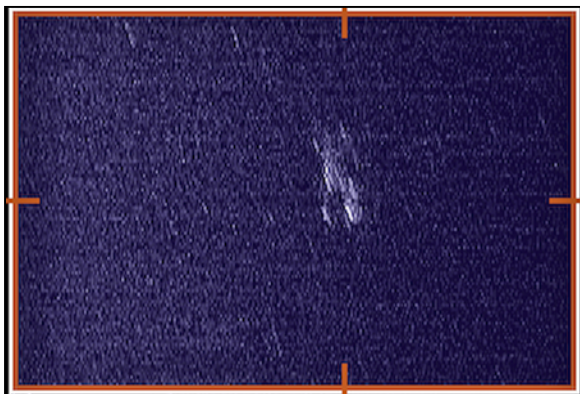
Sonar image of the Echo Bay Metal Barge Wreck (MHM).



Looking toward one end of the Echo Bay Metal Barge Wreck (Kelly Nehowig).

Red Dodge Ram Laramie SLT Pickup Truck Site

The Red Dodge Ram Laramie SLT Pickup Truck Site was created recently, sometime before November 2011 when the first sonar image of it was recorded. The truck has an extended cab and the windows were open when it fell through the ice. It is substantially buried in silt and neither of its license plates can be read. Its year of manufacture cannot be ascertained at this time (Merriman and Olson 2012a, 58, 2015g).



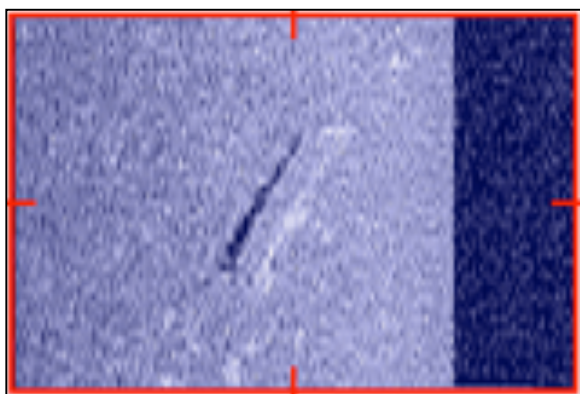
Sonar image of the Dodge Ram Laramie SLT Pickup Truck (MHM).



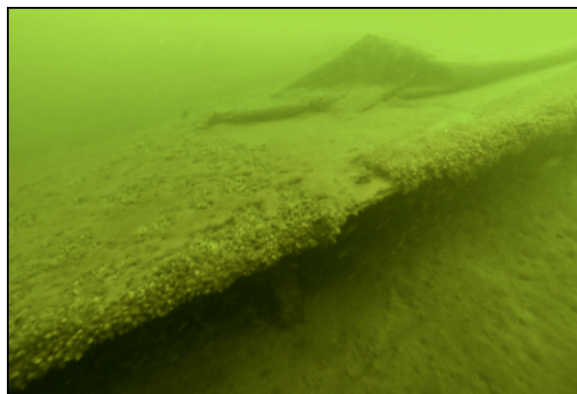
The Dodge logo in the truck's tailgate (Mark Slick).

Carpeted Wooden Dock Site

The carpeted wooden dock is 20.50 feet long and 4.50 feet wide, the carpet is loose in places, and has a metal loop on one end. The dock likely loosened from another dock section or the shoreline during a period of high water or similar event, probably in the early 2000s (Merriman and Olson 2014b, 47).



Sonar image of the Carpeted Wooden Dock (MHM).



A section of the Carpeted Wooden Dock (Kelly Nehowig).

ASSOCIATED PROPERTY TYPES

The 1998 SMILR MPDF placed the types of wrecks that could be found in Minnesota into two broad categories:

Group 1: wind-, water-, hand-, or horse-powered vessels (bark canoes [Indian, express/light, north, bastard, Montreal], wood canoes [pirogues/dugouts, strip], skin boats [skin-covered frame canoe, bull boat], feluccas/longboats, bateau [bateau plat/Chaland, Mackinaw/Albany, York, Sacking], keelboats [ordinary, barge], flatboats [private, excursion/pleasure, wanigans], rafts [simple floater, wanigan, headwork, log/lumber], ferries, pontoon bridges/wharves, rowboats, and miscellaneous vessels [various sailboats, sculls, pontoons, kayaks, glass-bottomed boats, ice boats, ice yachts, and others])

Group 2: fuel powered vessels (packets, tramp steamers, log rafters/raft boats/towboats, bowboats/variants [alligators], channel maintenance vessels, launches/variants, excursion vessels, ferryboats, miscellaneous vessels (Hall, Newell, and Birk 1998, F1-7))

The development of two broad wreck categories based on propulsion is viable, but the sub-categories constructed to describe watercraft types based on function are not useful in terms of defining wreck sites. For Lake Minnetonka, recognized wreck sites and wrecks identified in the future will be classified by their hull construction material, their engine type, means of propulsion, and hull configuration. Function or functions of a boat will be described in terms of the life history of the wreck, but it is not a defining attribute that will place a site into its type.

PROPERTY TYPES: WRECKS

For Lake Minnetonka, wrecks and other sites may be considered under the four NRHP criteria:

- A) Property is associated with events that have made a significant contribution to the broad patterns of our history
- B) Property is associated with the lives of persons significant in our past
- C) Property embodies the distinctive characteristics of a type, period, or method of construction or represents the work of a master, or possesses high artistic values, or represents a significant and distinguishable entity whose components lack individual distinction
- D) Property has yielded, or is likely to yield, information in prehistory or history

In describing and defining the following property types, it is understood that nearly all of these sites are comprised of composite artifacts. The three main divisions below - wood, metal, and fiberglass - represent the primary construction material of the property or artifact.

WOODEN PROPERTIES: WRECKS

W1. Wooden Canoes. At this point there is only one wooden canoe discovered in Lake Minnetonka. The Lake Minnetonka North Arm Dugout Canoe (21-HE-438) does not qualify for nomination to the NRHP due to its loss of context (Merriman and Olson 2014a, 9-12). As for propulsion, all canoes are paddled, with the paddlers facing forward. If a paddle were found associated with a canoe in an archaeological context, it would be unusual and significant.

W1. Identified Wreck Designs:

1. Dugout

Because of the rarity of Pre-Contact and Early Post-Contact dugout canoes in Minnesota (8 known), if located in Lake Minnetonka in the future and left *in situ*, would be considered for NRHP nomination under Criteria C and D. Under Criterion C, dugout canoes studied to date indicate there are cultural and geographical attributes evident in artifact construction that are also temporally linked. These attributes include canoe end (bow and stern, if differentiated, and the degree of rounded or sharpness) design, bottom hull design (rounded or hard chines), and tool marks (stone or bone tools compared to historic chisels) on the inner and outer hulls (Merriman and Olson 2014a, 29-30). The data considered under Criterion C combined with the background history and archaeology of potential dugout canoe sites would be considered under Criterion D.

W1. Potential Wreck Designs:

1. Bark hull, wood frames
2. Planked hull, wood frames

Wooden framed bark-hulled canoes were used in Minnesota by the late 1600s (Wheeler et al 1975, 2-4) and many pictorial representations of these craft exist in the historical record. Contact and Post-Contact Period bark-hulled canoes, if found in Lake Minnetonka, would have been constructed by Native Americans. These artifacts could be considered for NRHP nomination under Criteria C and D due to distinctive construction attributes and the lack of archaeological information that exists about them. Any bark canoes located in Lake Minnetonka would yield significant information pertaining to Minnesota's maritime history. No complete Minnesota bark canoes from archaeological contexts have survived, although a thwart and caprail were recovered near Fort Charlotte near the Canadian boarder (Wheeler et al 1975, 85-86). There is also the potential to locate planked canoes from the Post-Contact Period on the bottom of Lake Minnetonka. These watercraft were constructed by local boat yards, including Moore Boat Works, in the early 1900s and called "Hudson River Canoes" that were "copied from the Indian model" (Moore Boat Works 1908, 23). Planked wooden canoes may be considered for NRHP nomination under Criterion C due to their distinctive characteristics as a type.

W2. Wooden Rowboats. Five wooden rowboat wrecks (21-HE-415, 21-HE-417, 21-HE-422, 21-HE-457, 21-HE-469) have been identified on the lake bottom, with a high

probability of more to be identified because of the great numbers of this type used on Lake Minnetonka (Merriman and Olson 2013a, 16-20, 2013b, 17-18, 2014b, 44-45). Due to the fragmentary condition of three of these specific sites (21-HE-417, 21-HE-422, 21-HE-469), they would not be considered for NRHP nomination. The Gideon Bay Wreck (21-HE-215) could be considered for NRHP nomination under Criteria C for its classic hourglass and clinker-built construction, and D because it is nearly complete, with surviving athwartships seats and hull sides. The Crystal Bay Rowboat Wreck (21-HE-457), while in a delicate condition, has retained nearly all of its components including thin frames and stringers, as well as triangular stern braces at the stern. This wreck could be considered for NRHP nomination under Criteria C for its framing detail and carvel-built construction and Criteria D because it is nearly complete. One small rowboat wreck with a pointed bow, transom stern, and an athwartships planked bottom was removed from Wayzata Bay decades ago and it has been seen personally by the authors. This boat does cannot be considered for NRHP nomination due to its loss of context. All rowboats are rowed with the oars in rowlocks, and the rowers facing the stern.

W2. Identified Wreck Designs:

1. Pointed decked bow, wineglass stern, clinker-built, longitudinally planked, frames, keel (Moore and Ramaley range of Family Rowboats)
2. Pointed bow, transom stern, carvel-built, athwartships planked (Ramaley Fisherman's Friend)
3. Pointed bow, transom stern, carvel-built, frames, keel, longitudinally planked

Since the 1860s, hundreds of rowboats were used on Lake Minnetonka for fishing, local purposeful travel, and pleasure. Boarding houses and hotels owned fleets of these small watercraft for the enjoyment of their guests (Merriman and Olson 2013b, 9).

W2. Potential Wreck Designs:

1. Pointed and decked bow and stern, carvel-built, frames, keel (Moore Canvas Hunting Boat; resembles a kayak)
2. Pointed and decked bow and stern, clinker-built, frames, keel (Ramaley's Hunting and Fishing Boats)
3. Pointed bow, transom stern, clinker-built, longitudinally planked, frames, keel

These vessels were often constructed from less expensive wood and if not stored properly, would rot quickly. Therefore, the best-preserved Lake Minnetonka wooden rowboats will be found on the lake bottom, probably in deeper water. The skill of the boatwright, the difficulty of design, the type of wood used, and the desired level of quality in the finished product are considerations in analyzing wooden rowboat wrecks. For NRHP consideration, wooden rowboat wrecks could be considered under Criterion C due to their distinctive typological attributes. Further, since these vessels were usually constructed without plans or their plans have not survived, examples on the lake bottom provide important information on the history of Minnesota small craft construction under Criterion D.

W3. Wooden Sailboats. No wooden sailboats have been located on the bottom of Lake Minnetonka to date; although the wooden mast or boom mentioned above is part of one of these vessels. However, the first recorded wreck on Lake Minnetonka was the capsized schooner *White Swan* in November 1857 whose cargo went to the lake bottom while the boat did not. The schooner was hired to move the Stone family from North Arm to Minnetonka Mills when the boat capsized in a violent gale; six people died, including two children. A 14 year-old boy survived by clinging to the bottom of the overturned vessel that eventually floated to the shoreline (McGinnis 2010, 269; *Minnetonka Record* 1905). Other recorded sailboat wrecks include the wooden hulled sloop *Coquette/Eugene Mehl* scuttled in Crystal Bay in 1884 (McGinnis 2010, 46) and the wooden hulled 'Brackett Sloop' that sank during a squall in early May 1894 (*Northwestern Tourist* 1894). As mentioned above, in 1890 the newly-formed MYC had four classes of boats racing in their regattas. These sailboat classes were based on hull size, mast placement, and sail configuration (Kunz 1982). Defining sailboat wreck designs that may be found on the lake bottom could be problematic since the boat's "type" is usually determined by the vessel's sail shape - an attribute that often would not survive - and the number of masts such as schooner and ketch (2) or sloop and catboat (1); as well as the physical placement of the mast. Further, a boat's "class" as determined by the MYC was dependent on hull size. This MPDF is concerned with hull construction and form of propulsion to determine types and designs.

W3. Potential Wreck Designs:

1. Pointed bow, transom stern, frames, keel, two masts (schooner, ketch)
2. Pointed bow, transom stern, frames, keel, centerboard, two masts (schooner, ketch)
3. Pointed bow, transom stern, frames, keel, daggerboard, two masts (schooner, ketch)
4. Pointed bow, wineglass stern, frames, keel, single mast (sloop, catboat)
5. Pointed bow, transom stern, frames, keel, single mast (sloop, catboat)
6. Pointed bow, transom stern, centerboard, frames, keel, single mast (catboat, sloop)
7. Pointed bow, transom stern, daggerboard, frames, keel, single mast (catboat, sloop)
8. Square bow, square stern, frames, keel, single mast (scow)
9. Square bow, square stern, centerboard, frames, keel, single mast (scow)
10. Square bow, square stern, daggerboard, frames, keel, single mast (scow)
11. Double hulled, frames, keels, one mast (catamaran)

Potential wooden sailboat wrecks on the bottom of Lake Minnetonka could be considered for NRHP nomination under Criteria B, C and D. Under Criterion B in consideration of Lake Minnetonka history, a sailboat wreck determined to be the product of one of the noted boat wrights located on the lakeshore, particularly Arthur Dyer (creator of the locally-famed record-holding *Onawa*), Royal C. Moore, Thomas H. Wise, or Captain John R. Johnson. Under Criterion C, wooden sailboats linked to the yacht clubs on Lake Minnetonka are representative of distinctive classes of boats constructed to particular specifications such as A, C, and E scows, etc. Under Criterion D, few historic wooden sailing vessels have survived due to the material chosen for their construction, with the exception of the *Onawa* (on exhibit at the Excelsior Lake Minnetonka Historical Society) and a few other examples. Wrecks of this nature will expand our knowledge of these vessel types through their location and documentation;

potential sailboat wrecks are physical representations of a historical Minnesota watercraft-building tradition.

W4. Wooden Sailing Ice Boats. Ice boating became popular on Lake Minnetonka beginning in the 1890s. No sailing ice boats have been located on the bottom of Lake Minnetonka to date but it is possible that wooden sailing ice boats went through thin ice at any point since then, or were left on the ice during a thaw.

W4. Potential Wreck Designs:

1. T-Frame, three wooden runners, metal blades, singled mast, sloop-rigged (pictorial evidence)

If wooden sailing ice boat wrecks are identified on the bottom of Lake Minnetonka, they could be considered under Criteria C and D because of their unique design and their rarity.

W5. Wooden Barges. Currently there are four identified wooden barges on the bottom of Lake Minnetonka with construction dates spanning 1876-1926 and sinking dates spanning 1879-mid-1940s/early 1950s. All four of the wooden barges (21-HE-400, 21-HE-401, 21-HE-441) would be considered for NRHP nomination under Criteria C and D. While considered common watercraft, barges were not numerous in comparison with other types of vessels and these work vessels do not often survive in the archaeological record in spite of their sturdy construction (Merriman and Olson 2012a, 2013a, 2014b).

W5. Identified Wreck Designs:

1. Pointed ends, bottom longitudinally planked, two layers of decking (one longitudinal, one athwartships), frames, keel (model barge)
2. Raked square ends, bottom athwartships planked, decked, frames (scow piledriver/dredge)
3. Raked square ends, bottom athwartships planked, partially decked, frames, side flaps (hopper barge)

Wooden barges, depending on their design, could be considered for NRHP nomination under Criteria B, C, and D. Under Criterion B, the Hopper Barge Wrecks were constructed and used by Captain John R. Johnson's Minnetonka Dredging Company (MDC); the St. Albans Bay Wreck likely was created and used by Johnson as well. Captain Johnson's life on Lake Minnetonka and the six wrecks (*Saucy Kate*, *Minneapolis*, *Priscilla*, St. Albans Bay Wreck, Hopper Barge Wrecks) so far discovered that represent his craftsmanship and/or his business interests survive on the bottom of the lake. In addition, Johnson was linked to numerous vessels on the lake as listed above, including the iconic *City of St. Louis*. Additionally, undiscovered wooden barge wrecks have the potential to be associated with the lives of significant people from our maritime past as well. Under Criterion C, the Wayzata Bay Wreck is a distinctive and rare model barge (only two partial model barge wrecks are known in the US archaeological record) with two pointed ends; the scow-ended Hopper Barge Wrecks have distinctive side flaps instead of bottom flaps, an innovation not seen in the

historical or archaeological record; and the St Albans Bay Wreck typifies the wooden square-ended dredge/piledriver that shaped and changed Lake Minnetonka's shoreline and bottom. Under Criterion D, these four wooden barges and any yet to be identified on the lake bottom have the potential to provide naval architectural data for barge types that were constructed without plans or whose plans have not survived in the historical record, and that are rare in the archaeological record.

W5. Potential Wreck Designs:

1. Raked square ends, bottom athwartships planked, decked, frames, bottom flaps (scow hopper barge)
2. Raked square ends, bottom athwartships planked, decked, frames (example: scow ferry at the Narrows)
3. Pointed bow, square stern, frames, keel (examples: *Mermaid*, cut down from the *Governor Ramsey/Excelsior/Lady of the Lake/Minnetonka*; *Priscilla*, cut down from the *City of St. Louis*)
4. Pointed bow, square stern, bottom longitudinally planked, sponsons, frames, keel (example: mud barge cut down from the *City of St. Louis*)
5. Raked square ends, bottom longitudinally planked, decked, frames (example: *Nina*, cut down from steam propeller *Nina* (McGinnis 2010, 71, 95, 196, 214, 220))

The potential barge wreck sites that may be located on the bottom of Lake Minnetonka could be considered for NRHP nomination under Criteria B, C, and D, just like the four identified barge wrecks and using the same rationale.

W6. Wooden Steamers. Eight known wooden wrecks on the bottom of Lake Minnetonka were powered by steam (in *Priscilla's* case, she was powered by steam initially and then converted to internal combustion): *Saucy Kate* (21-HE-420), *Minneapolis* (21-HE-403), *George/Excelsior* (21-HE-399), *Como* (21-HE-397), *White Bear* (21-HE-281), *Hercules* (21-HE-398), *Hopkins/Minnetonka* (21-HE-396), and *Priscilla* (21-HE-404) (Merriman and Olson 2012a-b, 2013a-b, 2014b, 2015a, d-g, i). Depending on the size of propeller steamers, they are classified as launches (50 feet and under) or passenger boats (51 feet and larger). Launches are privately owned/used boats and passenger boats are commercial vessels. The placement of the steam engines and boilers for propeller-driven launches and passenger boats is amidships.

W6. Identified Wreck Designs:

1. Pointed bow, round stern, bottom longitudinally planked, frames, keel, propeller (launch, passenger boat)
2. Pointed bow, transom stern, bottom longitudinally planked, frames, keel, sternwheel (passenger boat)
3. Rounded ends, bottom longitudinally planked, frames, keel, sidewheel (passenger boat)
4. Pointed bow, torpedo stern, bottom longitudinally planked, frames, keel, propeller (launch, passenger boat)
5. Rounded ends, bottom longitudinally planked, frames, keel, sidewheel (passenger boat)

All known steamer wrecks in Lake Minnetonka have the potential to represent events that have made a significant contribution to the broad patterns of history - Criterion A. All the steamer wrecks - with the exception of *George/Excelsior* - are associated with persons that were significant to Lake Minnetonka's and Minnesota's maritime past, specifically Captain John R. Johnson and Royal C. Moore - Criterion B. Of the eight known steamers, the Streetcar Boats (*Como*, *Hopkins/Minnetonka*, *White Bear*) with their torpedo stern design and resemblance to the TCRT streetcars embody distinctive characteristics of their type and the period within which they operated - Criterion C. While the construction attributes of the Streetcar Boats are known, the other five steamer wrecks were built by local boatwrights and with the exception of *Hercules*, no plans of their construction have survived. The physical remains on the lake bottom of these Lake Minnetonka propeller, sternwheel, and sidewheel steamers could be considered for NRHP nomination under Criterion D.

W6. Potential Wreck Designs:

1. Rounded bow and stern, bottom longitudinally planked, frames, keel, propeller (launch, passenger boat)
2. Pointed ends, bottom longitudinally planked, frames, keel, sidewheel (passenger boat)
3. Pointed bow, round stern, bottom longitudinally planked, frames, keel, sidewheel (passenger boat)
4. Pointed bow, transom stern, bottom longitudinally planked, frames, keel, sidewheel (passenger boat)

In the historical record, over the decades, dozens of steamers have sank in Lake Minnetonka through boiler explosions and burning, storms, collisions, or simply grounded, and some were raised, re-built, and re-launched. Others have been cut down, re-designed, and re-used (McGinnis 2010). Of the small steam launches, mid-sized steamers, and large steamer excursion vessels on the lake, however, few have survived in the archaeological record. Some have been reported to have sank or were abandoned in specific locations, often at a shoreline. The problem inherent with shoreline-abandoned steamers is the changing nature of the lake's banks from natural processes and human intervention: rip rap operations, dredging, and dock and pier installations. Depending on which steamers are located in the future, the potential for their consideration under Criteria A, B, C, and D is possible using the same rationale as those associated with the known steamer wrecks.

W7. Wooden Gasoline Powered Inboards. Gasoline powered inboard boats have operated on Lake Minnetonka since the late 1890s when launches were constructed for those who could afford this type of personal watercraft. Six identified wooden wrecks on the lake bottom were powered by gasoline inboard engines: two cruisers (21-HE-446, one no site number), a motorized ice boat (21-HE-416), and 3 utilities (21-HE-423, 21-HE-424, 21-HE-447). The Capsized Wood Boat Wreck (21-HE-418) was likely gasoline powered or was possibly a naphtha launch (Merriman and Olson 2013a-b, 2014b).

W7. Identified Wreck Designs:

1. Pointed bow, transom stern, foredeck, cabin, bottom longitudinally planked, carvel-built, frames, keel, inboard engine amidships, propeller (cruiser)
2. Pointed bow, transom stern, foredeck, bottom longitudinally planked, carvel-built, frames, keel, inboard engine doghouse behind seat, propeller (utility)
3. Pointed bow, transom stern, foredeck, plywood-planked, frames, keel, inboard engine doghouse behind seat, propeller (utility)
4. Narrow bow with runner, wide stern with two aft runners port and starboard (ice boat)

Lake Minnetonka's wooden gasoline powered inboard wrecks span many decades of history and those currently identified on the lake bottom are similar in design, regardless of differences in size and age. Manufacturers currently represented by wooden gasoline powered wrecks on the lake bottom include Century, Correct Craft, and Owens, with the brand of two wrecks unknown. Naphtha launches were popular with some boaters because they did not fall under the same safety regulations that vessels with steam boilers had to meet – meaning a trained and licensed boiler operator did not have to be on board or employed by the boat's owner. The first naphtha launch on Lake Minnetonka, *Tatu*, was constructed in New York for Charles Gibson and launched on the lake in 1889 (McGinnis 2010, 242-243). Naphtha engines visually resembled small steam engines and were placed near the launch's stern; launches and passenger boats driven by propellers carried their inboard engines just aft of amidships. The identified wooden gasoline powered inboard wrecks in the lake could be considered for NRHP nomination under Criterion C for possibly-locally built cruiser wreck and in the future, Criterion D for the nationally-manufactured utilities and cruisers. One issue in determining the viability for NRHP consideration of wooden gasoline powered inboard wrecks are the incredible number of them that have been restored and are still afloat; in other words, many of them are common now, but in the future they may be rare and they would be indicative of their type.

W7. Potential Wreck Designs:

1. Pointed bow, round stern, bottom longitudinally planked, frames, keel, inboard engine amidships, propeller (launch, passenger boat)
2. Pointed bow, torpedo stern, bottom longitudinally planked, frames, keel, propeller (launch, passenger boat)
3. Pointed bow, transom stern, foredeck, cabin, bottom longitudinally planked, clinker-built, frames, keel, inboard engine amidships, propeller (cruiser)
4. Pointed bow, transom stern, foredeck, bottom longitudinally planked, clinker-built, frames, keel, inboard engine doghouse behind the front seat, propeller (utility)
5. Pointed bow, transom stern, foredeck, single/double/triple cockpit, bottom longitudinally planked, carvel-built, frames, keel, inboard engine, propeller (runabout, racing boat)
6. Pointed bow, transom stern, foredeck, single/double/triple cockpit, bottom longitudinally planked, clinker-built, frames, keel, inboard engine, propeller (runabout)
7. Pointed bow, transom stern, foredeck, cabin, plywood planked, frames, keel, inboard engine amidships, propeller (cruiser)

8. Pointed bow, transom stern, foredeck, single/double/triple cockpit, plywood planked, frames, keel, inboard engine, propeller (runabout, racing boat)

The potential to locate numerous gasoline-powered inboard wooden wrecks, including those known as runabouts and racing boats, on the bottom of Lake Minnetonka is high. The most likely manufacturer-constructed wrecks to be found on the lake bottom are Chris-Craft, Hacker-Craft, Lyman, Barbour, and Gar Wood, along with the locally-built Moore, Ramaley, Dingle and Wise. There are dozens of other gasoline powered inboard wooden boat makers in the US and abroad, so any number of different manufacturer's vessels could be located on the lake bottom. These wrecks could be considered for NRHP nomination under Criteria C and D under the same rationale as the known cruisers and utilities above.

W8. Wooden Gasoline Powered Outboards. Gasoline powered outboard boats have probably operated on Lake Minnetonka since the 1920s, particularly since a rowboat with a broad, square reinforced transom could serve as both an unpowered and powered vessel. One wooden wreck that would have been powered by a gasoline outboard motor has been identified on the bottom of Lake Minnetonka. The Wooden Motor Boat Wreck exhibits a registration number, an indicator that it was powered by a motor that is no longer associated with it. Its open hull design and small size suggests this wreck once served as a private fishing boat.

W8. Identified Wreck Designs:

1. Pointed bow, reinforced transom stern, open hull, thwarts (missing), carvel-built, frames, keel, outboard motor (missing)

W8. Potential Wreck Designs:

1. Blunt bow, transom stern, thwarts, plywood planked, frames, keel, outboard motor (skipper pram)
2. Pointed bow, transom stern, foredeck, single/double/triple cockpit, bottom longitudinally planked, carvel-built, frames, keel, outboard motor (runabout, racing boat)
3. Pointed bow, transom stern, foredeck, single/double/triple cockpit, bottom longitudinally planked, clinker-built, frames, keel, outboard motor (runabout)
4. Pointed bow, transom stern, foredeck, single/double/triple cockpit, plywood planked, frames, keel, outboard motor (runabout, racing boat)
5. Pointed bow, transom stern, foredeck, bottom longitudinally planked, clinker-built, frames, keel, outboard motor (utility)
6. Pointed bow, transom stern, foredeck, bottom longitudinally planked, carvel-built, frames, keel, outboard motor (utility)
7. Pointed bow, transom stern, foredeck, plywood planked, frames, keel, outboard motor (utility)
8. Square bow, square stern, plywood planked, thwarts, frames, keel, outboard motor (jon boat, duck boat, scow)

The reported sinking of a skipper pram in May 1931 is one confirmed wrecking of a wooden plywood-planked boat with an outboard motor, resulting in two fatalities. The wreck remained on the bottom of Lake Minnetonka even after one of the bodies was released from the wreck through dragging (*Minnetonka Herald* 1931a-d). The above potential wreck sites could be considered for NRHP nomination under Criteria C and D depending on their specific contexts, histories, and construction details.

W9. Wooden Gasoline/Diesel Powered Inboard/Outboards. No wooden wrecks powered by gasoline inboard/outboard engines have been identified on the bottom of Lake Minnetonka as of yet.

W9. Potential Wreck Designs:

1. Pointed bow, transom stern, foredeck, single/double/triple cockpit, bottom longitudinally planked, carvel-built, frames, keel, inboard/outboard engine (runabout, racing boat)
2. Pointed bow, transom stern, foredeck, single/double/triple cockpit, bottom longitudinally planked, clinker-built, frames, keel, inboard/outboard engine (runabout)
3. Pointed bow, transom stern, foredeck, single/double/triple cockpit, plywood planked, frames, keel, inboard/outboard engine (runabout, racing boat)
4. Pointed bow, transom stern, foredeck, bottom longitudinally planked, clinker-built, frames, keel, inboard/outboard engine (utility)
5. Pointed bow, transom stern, foredeck, bottom longitudinally planked, carvel-built, frames, keel, inboard/outboard engine (utility)
6. Pointed bow, transom stern, foredeck, plywood planked, frames, keel, inboard/outboard engine (utility)

Any of the potential wooden gasoline powered inboard/outboard wrecks of the designs listed above would date to 1959 or later since this engine type was introduced into the US that year. American marine designer Jim Wynne developed the inboard/outboard engine in his garage, but no US company would back his work financially. Wynne went to Europe and with the support of the Swedish manufacturer Volvo, the Volvo Penta Aquamatic inboard/outboard engine was constructed. Few wooden inboard/outboard gasoline powered boats have been constructed since this engine type has been primarily installed in fiberglass watercraft (Volvo Penta 2009). Wooden gasoline powered inboard/outboard wrecks in Lake Minnetonka could be considered for NRHP nomination under Criteria C and D, particularly if a Volvo Penta Aquamatic is found to be the vessel's engine.

METAL PROPERTIES: WRECKS

M1. Metal Canoes. To date, two aluminum canoes have been located on the bottom of Lake Minnetonka. They date from the 1960s to possibly the 1970s, and they sank in the late 1970s and early 1980s (Merriman and Olson 2013b, 45-48, 2014b, 31-32).

M1. Identified Wreck Designs:

1. Pointed ends, thwarts, keel, aluminum

The potential to locate other metal canoes on the lake bottom is good, considering the great number of these small watercraft that were used by lake residents and visitors over the decades.

M1. Potential Wreck Designs:

1. Pointed ends, thwarts, keel, steel
2. Pointed bow, square stern, thwarts, keel, aluminum
3. Pointed bow, square stern, thwarts, keel, steel
4. Pointed ends, thwarts, bilge keel, keel, aluminum
5. Pointed ends, thwarts, bilge keel, keel, steel
6. Pointed bow, square stern, thwarts, bilge keel, keel, aluminum
7. Pointed bow, square stern, thwarts, bilge keel, keel, steel
8. Pointed ends, thwarts, splash rail, keel, aluminum
9. Pointed ends, thwarts, splash rail, keel, steel
10. Pointed bow, square stern, thwarts, splash rail, keel, aluminum
11. Pointed bow, square stern, thwarts, splash rail, keel, steel

Metal canoes can also be fitted with small outboard motors, either trolling motors or 3 HP types. In the future, metal canoes may be considered for NRHP nomination under Criteria C and D.

M2. *Metal Barges.* One metal-hulled barge wreck has been identified on the bottom of Lake Minnetonka, the Echo Bay Metal Barge Wreck that was constructed in the 1970s and sank between 1981-1985 (Merriman and Olson 2013a, 43-45). If the Echo Bay Metal Barge Wreck is considered for NRHP nomination in the future, it could be under Criteria C and D.

M2. Identified Wreck Designs:

1. Raked square bow, transom stern, partially decked, frames, steel (bulk cargo barge)

There may be more of this wreck type in the lake, given that in the latter half of the 20th Century metal barges were extensively used around the lake for shoreline improvements, rip rap, pier and dock construction, and to transport dredge spoil, just like their wooden predecessors.

M2. Potential Wreck Designs:

1. Raked square ends, partially decked, frames, bottom flaps, steel (scow hopper barge)
2. Raked square ends, partially decked, frames, steel (scow bulk cargo barge)
3. Raked square ends, frames, bottom flaps, steel (scow hopper barge)
4. Raked square ends, frames, steel (scow bulk cargo barge)
5. Raked square ends, decked, frames, steel (working platform scow barge)
6. Raked square bow, transom stern, decked, frames, steel (working platform barge)
7. Raked square bow, transom stern, partially decked, frames, bottom flaps, steel (bulk cargo barge)
8. Raked square bow, transom stern, frames, bottom flaps, steel (bulk cargo barge)

9. Raked square bow, transom stern, frames, steel (bulk cargo barge)

The Echo Bay Metal Barge Wreck sank due to high waves and wind, a common occurrence on the lake. In consideration of the lake's large size and the amount of shoreline work that has occurred, the potential to find more metal-hulled barges on the bottom of Lake Minnetonka is good. In the future metal barges could be considered for NRHP nomination under Criteria C and D.

M3. Metal Gasoline Powered Outboards. To date, seven metal-hulled wrecks powered by gasoline outboard motors have been identified on the bottom of Lake Minnetonka.

M3. Identified Wreck Designs:

1. Pointed bow, transom stern, thwarts, center steering console, single cockpit, keel, outboard motor, aluminum (runabout)
2. Pointed bow, transom stern, foredeck, thwarts, keel, outboard motor, aluminum (utility)
3. Pointed bow, transom stern, thwarts, keel, outboard motor, aluminum (utility)
4. Square raked bow, transom stern, amphibious, outboard motor, steel (houseboat)
5. Double hull pontoons, wooden platform deck, outboard motor, aluminum (pontoon boat)

Three of the identified wrecks were constructed in 1949, one in 1959, and one in 1977, with two having unknown construction dates. One of them sank in a collision, two by accident, one was stolen and intentionally scuttled, and three of them sank for unknown reasons. The outboard motors for four of these wrecks (including the scuttled watercraft) are missing, suggesting they were removed prior to being intentionally sunk. Four of the seven identified metal hulled-wrecks with gasoline outboard motor propulsion were locally-built, while another was constructed in Texas. These five wrecks could be considered for NRHP nomination under Criteria A, C, and D. Two of the Minnesota-built wrecks are of the same model with slightly different designs, and the history behind one of them is known (21-HE-448). The wreck from Texas is a rare and innovative watercraft constructed from World War II surplus equipment (Merriman and Olson 2013a-b, 2014b).

The potential designs of metal gasoline outboard wrecks yet to be identified on the bottom of Lake Minnetonka primarily center on personal watercraft used for fishing, waterskiing, and pleasure boating.

M3. Potential Wreck Designs:

1. Square raked bow, square stern, thwarts, keel, outboard motor, aluminum (jon boat, duck boat)
2. Pointed bow, transom stern, foredeck, keel, outboard motor, aluminum (utility)
3. Pointed bow, transom stern, keel, outboard motor, aluminum (houseboat)
4. Pointed raked bow, transom stern, tall center console, keel, outboard motor, aluminum (whaler)

5. Square raked bow, transom stern, tall center console, keel, outboard motor, aluminum (whaler)
6. Square raked bow, transom stern, outboard motor, aluminum (houseboat)
7. Double hull pontoons, platform deck, outboard motor, steel (pontoon boat)

In the future these wrecks could be considered for NRHP nomination under Criteria C and D, depending on their design, specific attributes, and manufacturer.

M4. Metal Gasoline/Diesel Powered Inboard/Outboards. No metal gasoline or diesel powered inboard/outboard wrecks have been identified on the bottom of Lake Minnetonka yet.

M4. Potential Wreck Designs:

1. Pointed bow, transom stern, foredeck, single/double/triple cockpit, keel, inboard/outboard engine, aluminum (runabout, racing boat)
2. Pointed bow, transom stern, foredeck, keel, inboard/outboard engine, aluminum (utility)
3. Square raked bow, transom stern, inboard/outboard engine, steel (houseboat)
4. Double hull pontoons, transom platform deck, inboard/outboard engine, aluminum (pontoon boat)

Just like their wooden-hulled counterparts, any of the potential metal-hulled gasoline or diesel powered inboard/outboard wrecks of the designs listed above would date to 1959 or later since this engine type was introduced into the US that year. Few wooden inboard/outboard gasoline or diesel powered boats have been constructed since this engine type has been primarily installed in fiberglass watercraft, as mentioned above (Volvo Penta 2009). Metal gasoline or diesel powered inboard/outboard wrecks in Lake Minnetonka could be considered for NRHP nomination under Criteria C and D, particularly if a Volvo Penta Aquamatic is found to be the vessel's engine.

FIBERGLASS PROPERTIES: WRECKS

F1. Fiberglass Canoes. No fiberglass canoes have been located on the bottom of Lake Minnetonka. The buoyant nature of fiberglass, particularly when used in a kayak with its mostly enclosed deck, makes the likelihood of identifying an example of this watercraft type low.

F2. Fiberglass Rowboats. No fiberglass rowboats have been located on the bottom of Lake Minnetonka yet. It is possible, due to the low freeboard and open nature of these small craft, that examples could be swamped in high wind and waves, and sink to the bottom.

F2. Potential Wreck Designs:

1. Pointed bow, transom stern, thwarts
2. Pointed bow, wineglass stern, thwarts
3. Raked square bow, transom stern, thwarts

4. Pointed bow, transom stern, thwarts, keel
5. Pointed bow, wineglass stern, thwarts, keel

Since fiberglass is a formed material, there is no structural difference between smooth hull and imitation clinker-built watercraft; the difference is purely cosmetic and not an attributed used to determine design. In the future, fiberglass rowboats could be considered for NRHP nomination under Criteria C and D depending on their design, manufacturer, and rarity.

F3. *Fiberglass Sailboats.* No fiberglass sailboat wrecks have been identified on the bottom of Lake Minnetonka. However, the potential to discover this type of vessel is good considering the great number of racing sailboats affiliated with the yacht clubs on the lake. The use of fiberglass sailboats was allowed in inland yachting competitions beginning in the 1950s, and fiberglass pleasure sailing boats were available at the same time.

F3. Potential Wreck Designs:

1. Pointed bow, wineglass stern, keel, single mast (sloop, catboat)
2. Pointed bow, transom stern, keel, single mast (sloop, catboat)
3. Pointed bow, transom stern, centerboard, single mast (catboat, sloop)
4. Pointed bow, transom stern, daggerboard, single mast (catboat, sloop)
5. Square bow, square stern, single mast (scow)
6. Square bow, square stern, centerboard, single mast (scow)
7. Square bow, square stern, daggerboard, single mast (scow)
8. Double hulled, one mast (catamaran)

If any design of fiberglass sailboat is located on the bottom of Lake Minnetonka, depending on their manufacturer, design, and rarity, they could be considered for NRHP nomination under Criteria C and D.

F4. *Fiberglass Gasoline Powered Outboards.* So far there are two identified fiberglass gasoline outboard motor wrecks on the bottom of Lake Minnetonka, the Blue Star Miamian Custom Wreck and the Owens Twin Sport Wreck.

F4. Identified Wreck Designs:

1. Pointed bow, transom stern, foredeck, keel, outboard motor (utility)

The two known fiberglass wrecks powered by gasoline outboard motors were constructed between 1959 and 1961. It has been determined that one of these wrecks was a casualty of the May 6, 1965 Deephaven tornado and the other wreck may be as well. Both of these wrecks are rare forms of fiberglass construction, manufactured by companies that formed these designs for a limited number of years - two years for one wreck and 2-4 years for the other (Merriman and Olson 2013a, 34-39, 2013b, 29-32, 2014b, 34-37). Therefore, the Blue Star Miamian Custom Wreck could be considered for NRHP nomination under Criteria A, C, and D, while the Owens Twin Sport Wreck could be considered under Criteria C and D.

The potential designs of fiberglass gasoline outboard wrecks yet to be identified on the bottom of Lake Minnetonka primarily center around smaller personal watercraft used for fishing and pleasure boating, but larger cruiser wrecks with outboards may be located as well.

F4. Potential Wreck Designs:

1. Pointed bow, transom stern, foredeck, single/double/triple cockpit, keel, outboard motor (runabout, racing boat)
2. Pointed bow, transom stern, keel, outboard motor (houseboat)
3. Pointed raked bow, transom stern, tall center console, keel, outboard motor (whaler)
4. Square raked bow, transom stern, tall center console, keel, outboard motor (whaler)
5. Square raked bow, transom stern, outboard motor (houseboat)

In the future fiberglass gasoline powered outboard wrecks could be considered for NRHP nomination under Criteria C and D, depending on their design, specific attributes, and manufacturer.

F5. Fiberglass Gasoline/Diesel Powered Inboard/Outboards. Currently there are two identified fiberglass inboard/outboard wrecks, the Red Fiberglass Wreck and the Larson Delta Cruiser Wreck, on the bottom of Lake Minnetonka.

F5. Identified Wreck Designs:

1. Pointed bow, transom stern, foredeck, keel, inboard/outboard engine in stern dog house (utility)
2. Pointed bow, transom stern, foredeck above cuddy, keel, inboard/outboard engine in compartment (cruiser)

The Red Fiberglass Wreck has a Chrysler Marine Volvo Penta engine. Her manufacturer is currently unknown. The Larson Delta Cruiser Wreck's engine type is unknown at this time, but buyers had the choice of an Outboard Marine Corporation, Volvo, or MerCruiser engine (Merriman and Olson 2013b, 48-51, 2014b, 42-44, 2015g). Fiberglass wrecks with inboard/outboard engines may be considered for NRHP nomination under Criteria C and D, depending on date of manufacture, the manufacturer, and the history of the wreck.

A variety of other fiberglass-hulled wrecks with inboard/outboard engines may be located on the bottom of Lake Minnetonka in the future.

F5. Potential Wreck Designs:

1. Pointed bow, transom stern, foredeck, single/double/triple cockpit, keel, inboard/outboard engine (runabout, racing boat)
2. Square raked bow, transom stern, inboard/outboard engine (houseboat).
3. Pointed bow, transom stern, foredeck, full cabin, keel, inboard/outboard engine (cruiser)

Fiberglass wrecks with inboard/outboard engines may be considered for NRHP nomination under Criteria C and D, depending on the date of manufacture, the manufacturer, and the history of the wreck.

PROPERTY TYPES: OTHER

The SMILR MPDF did not take into consideration other types of underwater archaeological sites that may be identified on the bottom of Lake Minnetonka. This MPDF will consider the known properties and others that may be found in the future. At the time of writing, there are eight different types of maritime sites recognized on the bottom of Lake Minnetonka.

WOODEN PROPERTIES: MARITIME SITES

Identified Wooden Maritime Sites:

W10. *Wooden Pier.* The remains of the steamboat pier constructed in 1906 for the TCRT ferries *Minneapolis*, *St. Paul*, and *Minnetonka* at Big Island are extant in Big Island Bay. The remains are comprised of pier pilings and horizontal slats between the pilings. The pier is a section of the Big Island Pier, Park, and Veterans Camp Site (21-HE-402), a combined underwater and terrestrial maritime archaeological site (Merriman and Olson 2007, 2013a, 43-47). The submerged pier remains and entire island site could be considered for NRHP nomination under Criteria C and D.

W11. *Wooden Dock.* A carpeted wooden dock section located on the bottom of Lafayette Bay that probably sank in the 1990s or early 2000s (Merriman and Olson 2014b, 47) does not qualify for NRHP nomination. Other, older properties of this type may be considered for nomination under Criteria C and D.

W12. *Wooden Sailboat Parts: Mast or Boom.* The old wooden mast or boom found on the bottom of the lake does not qualify for NRH nomination due to its nature as only part of a vessel. However, other sailboat sections or parts could be considered for nomination under Criteria C and D depending on their context and disposition history.

Potential Wooden Maritime Sites:

W13. *Wooden Dive Platforms.* A wooden dive platform, the type that would be anchored in a bay near a shoreline for recreation, may be a potential wooden maritime site located on the bottom of Lake Minnetonka. Sonar evidence points to the existence of this site type on the bottom of the Upper Lake's Crystal Bay (Merriman and Olson 2012a, 50). A site of this type may be considered for NRHP nomination under Criteria C and D.

W14. *Wooden Fish Houses.* Although no fish houses have been identified on the bottom of Lake Minnetonka yet, the chances of locating this type of site is high. Sites of this type do not qualify for NRHP nomination.

METAL PROPERTIES: MARITIME SITES

Identified Metal Maritime Sites:

M5. *Metal Marine Launch Boilers.* The Marine Launch Boilers Site (21-HE-421) represents the only known steam power plants from Lake Minnetonka's steamboat heyday (Merriman and Olson 2013b, 19-22). They could be considered for NRHP nomination under Criteria C and D. Similar sites located in the future could also be considered under the same criteria, with the addition of Criterion A and/or B depending on the boiler's origin, history, and context.

M6. *Metal Pontoons.* Two pontoons constructed of steel drums welded together and held by straps, of different sizes and in different locations, exhibit distinct attributes specific to watercraft constructed by the Weeres Company of Richmond, MN (Merriman and Olson 2014b, 45-47). Due to the distinct characteristics of these sites, their rarity, and their probable construction by Minnesota's Weeres Company, they could be considered for NRHP nomination under Criteria B, C, and D. Two other pontoons have also been identified on the lake bottom, of more recent construction and design. They do not qualify for NRHP consideration.

M7. *Metal Model T Ford Doodlebug.* The Model T Ford Doodlebug Site (21-HE-bm) represents the wood cutting industry and the commerce it supported in the first half of the 20th Century (Merriman and Olson 2014b, 24-26). This site, and others like it, could be considered for NRHP nomination under Criteria C and D.

M8. *Metal Pontoon Raft.* A pontoon raft comprised of steel pontoons with a wooden platform represents recreation on Lake Minnetonka (Merriman and Olson 2013a, 51); it doesn't qualify for NRHP nomination.

M9. *Metal Boat Canopy Frames and Lifts.* One metal boat canopy frame has been identified on the lake bottom, not associated with a life mechanism. Sites of this type do not qualify for NRHP nomination.

Potential Metal Maritime Sites:

M10. *Metal Anchors.* Many anchors lie on the bottom of Lake Minnetonka - the wreck of the tug *Priscilla* and one of the Weeres pontoons have each snagged Danforth anchors - and as maritime artifacts, have historical value (Merriman and Olson 2013a, 11-13, 2014b, 45-47). However, unless an anchor can be linked to a particular historically important boat or wreck, or they are a rare design, they do not qualify for NRHP nomination.

M11. *Metal Outboard Motors.* Confirmed sightings of individual outboard motors have been made on the bottom of Lake Minnetonka. These motors could have fallen off moving boats, were thrown into the lake to dispose of them, or were propelled into the lake by tornadoes. They do not qualify for NRHP nomination.

OTHER PROPERTIES

Identified Other Properties:

OP1. *Vehicles.* To date three cars and one truck have been located on the bottom of Lake Minnetonka. These vehicles were probably engaged in maritime cultural activities such as transporting people to fish houses or as the focus of a "Dunk the Clunk" fundraiser. Further, chances are high to locate snowmobiles on the lake bottom as well (Merriman and Olson 2013a, 47-51, 2013b, 50-52, 2014b, 32-34). These sites do not qualify for NRHP nomination.

OP2. *Miscellaneous Objects.* Other non-maritime themed items have been identified in Lake Minnetonka and represent human made objects that have been disposed of intentionally, simply for the ease of dumping them in a large body of water, or as part of dock superstructure. Among the recognized items are a water heater, two pieces of concrete, metal pipes, a metal pole with an electrical box attached, a small metal box, and a marine toilet. Items associated with railroads such as ties, rail, or railroad cars could be located in those areas of Lake Minnetonka where the shoreline is in close association with the railroad lines. Additionally, thousands of miscellaneous human-made objects have been blown into the lake during storms, dropped into the lake by boats, and dropped through fishing holes: coolers, lawn chairs, plastic chairs, bottles, cans, fishing gear, and many other object not yet seen. None of these objects would be considered for NRHP nomination unless a particular artifact could be linked to an important event, person, or was a rare example of its type.

EVALUATION METHODS

The determination of NRHP nomination status for known and unknown Lake Minnetonka wrecks and maritime sites begins with the property's primary construction material. This attribute - wood, metal, or fiberglass - provides a starting point by which the design and details about each property can be further evaluated. Construction attributes that must be used to determine a wreck's design: bow and stern configuration, hull construction technique, and the presence or absence of keels, frames, cockpits, foredecks, cabins, thwarts, and consoles. Once a wreck's hull composition has been ascertained, the watercraft's type of propulsion must be determined: unpowered, steam boiler and engine, or inboards, outboards, and inboard/outboards powered by gasoline, naphtha or diesel. These basic details of construction and propulsion are then further defined by the design of a watercraft that includes the physical placement of the power source, cockpits, and other components within the hull: runabout, utility, racing boat, launch, and passenger boat, for example.

After construction material and design determination, the context of a property would be taken into consideration to determine any level of disturbance or if a wreck had been moved from its original location. Extremely poor condition of a wreck to the point that nearly all the construction attributes are missing and/or the movement of a property would negate its inclusion on the NRHP. Lake Minnetonka properties often have physical integrity because the cold fresh water of the lake provides an ideal environment

for the preservation of wood, metal, and fiberglass. For NRHP consideration, however, even superior physical integrity of submerged cultural resources must be supported with solid research to determine the archaeological and historical significance of a Lake Minnetonka property under the established Criteria A-D.

Some wrecks should be considered for NRHP inclusion singly and others could be grouped together into a multiple property submission. For example, the Wayzata Bay Wreck qualifies for NRHP inclusion under Criteria C and D as a single property. To contrast, the St. Albans Bay Wreck, *Priscilla*, the Hoper Barge Wrecks, *Minneapolis*, and *Saucy Kate* could be considered under Criteria B, C, and D because of their association with Captain John R. Johnson as a multiple property submission. Other group that could be considered for a multiple property submission under Criteria B, C, and D would be the *Como*, *Hopkins/Minnetonka*, *White Bear*, *Hercules*, *Minneapolis*, and *George/Excelsior* as properties of the Twin City Rapid Transit Company; or the Streetcar boats *Como*, *Hopkins/Minnetonka*, and *White Bear* because they were designed and constructed by Royal Moore in Wayzata. As further wrecks or sites are identified, additional multiple property submissions are possible due to the number of local boatwrights working on Lake Minnetonka in the late 19th and early 20th Centuries and the role that these companies played in the area's history. Wrecks or sites that were not constructed locally may also meet NRHP nomination standards depending on their type, construction attributes, physical integrity, rarity, ownership, and history on the lake.

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